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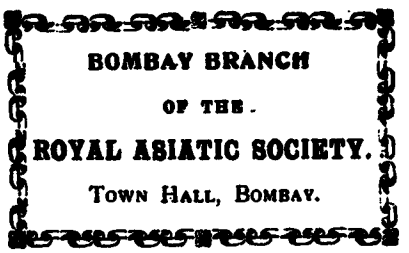

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TABLES

OF

ANCIENT COINS,

WEIGHTS *and* MEASURES,

EXPLAIN'D *and* EXEMPLIFY'D

IN SEVERAL

87471

DISSERTATIONS.

LONDON:

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PREFACE.

Believe it will be readily own'd that the Knowledge of the Value of the Money, Weights and Meaſures of the Ancients, is neceſſary to the underſtanding of their Writings. The Value of Coins, Weights and Meaſures is known, when the Proportion, which they bear to other known quantities of the ſame kind is determin'd, which are commonly thoſe of the Reader's own Country. In order to aſſiſt Engliſh *Readers in this particular, I publiſh'd about twenty Years ago ſome Tables, which being out of Print, it was ſuggeſted to me that if I would give the Copy, with ſome other Calculations relating to the ſame Subject, to my Son, he might make ſome Profit of them. This intereſted Motive I frankly own had its Share in producing the preſent Treatiſe.*

The firſt Tables were publiſh'd before the learned Dr. Hooper, *Biſhop of* Bath *and* Wells, *his* En-

quiry into the State of Ancient Meaſures; *which, if one conſiders the Uniformity of the whole Deſign, Accuracy of the Calculations, Sagacity of the Conjectures, Skill in reſtoring and comparing Paſſages of Ancient Authors, and the incomparable Learning that ſhines through the whole, excells very far all that was ever publiſhed upon the Subject; and indeed had my Deſign been merely the ſame with that of his Lordſhip, I ſhould not have preſum'd to have wrote any thing further on this matter. As my Calculations differ'd not in any conſiderable matters from his Lordſhip's, I thought it was ſufficient to take notice of thoſe differences without changing the Tables in any material Article. New Books on uſeful Subjects, if not erroneous, are ſo far advantageous to Learning, that being put as it were by accident into a great many Hands, engage ſome to ſtudy a Matter which they would not otherwiſe have thought of.*

I have been always of Opinion that young Gentlemen of an Age to conſider more than the mere Words of an ancient Author, ought not only to take along with them the Chronology, Geography, and a clear Idea of the Antiquities form'd by ocular Inſpection on Models and Figures; but likewiſe

to

to exercise their Arithmetick in reducing the Sums of Money, Weights and Measures mention'd in the Author, to those of their own Country. And I will venture to affirm that any Youth who is not taught after this manner, is in some measure deceived.

The Reader will find a great many Passages noted in the following Treatise, of which without this Knowledge he can neither understand the Terms nor Phraseology. It is in some measure necessary to explain Poets, Orators and Historians. But the Language of Manual Arts, Business, Traffick, &c. naturally obscure, is not intelligible without it. I believe I need not advertise the Reader that in a Work of this Nature it is impossible to avoid Puerilities, Trifles, and joyning things naturally incoherent, it having that in common with Dictionaries and Books of Antiquities.

The Faults (of which I am sensible there are a great many) are in some measure owing to my want of Leisure. The Mistakes are easily corrected from the Principles and Materials contain'd in the Book it self. With great Submission I deprecate the Wrath of all Criticks aud Antiquaries, which is wont to be very flagrant on such Occasions. I do not value

my

my ſelf on my Skill either in Languages, Hiſtory or Antiquity; far leſs on the little Skill in Numbers which is demanded for the whole Performance, which, bating one Problem about Intereſt, requires no great depth of Calculation. I queſtion not but any of them would have executed this Work better than my ſelf. Beſides, I have hardly Courage, I am ſure not Leiſure, to defend my ſelf. Thus they ſee what they generally aim to prove, is no more than what I freely own before-hand.

It is the Product of Labour more than Judgment, conſiſting chiefly of Collections from ſeveral Authors, and for which I am much obliged to Hoſtus's Hiſtoria Rei Nummariæ. *I propoſe no Reputation by it, and I hope I ſhall loſe none.*

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TO THE

KING.

GREAT Name, which in our Rolls recorded ſtands,
Leads, honors, and protects the learned Bands,
Accept this Offering, to thy Bounty due;
And *Roman* Wealth in *Engliſh* Sterling view.
Read here, how *Britain*, once deſpis'd, can Raiſe
As ample Sums, as *Rome* in *Cæſar*'s Days;
Pour forth as numerous Legions on the Plain,
And with more dreadful Navies awe the Main.

Tho'

* The King's Name ſtands firſt in the Buttery Books of *Chriſt Church College, Oxon.*

Tho' ſhorter Lines her fix'd Dominions bind,
Her Floating Empire ſtretches unconfin'd.
From *Thetis*' Stores, and not her Neighbours Spoils,
She draws her Treaſure, Fruit of honeſt Toils.
Rome ſack'd, and plunder'd; *Britain* cloaths, and feeds;
Acquires their Riches, but ſupplies their Needs.
Sweet Seat of Freedom! Be thy happier Doom
To 'ſcape the Fate, as well as Guilt, of *Rome*.
Where Riot, Offspring of unwieldy Store,
Enerv'd thoſe Arms, that ſnatch'd the Spoil before;
With coſtly Cates ſhe ſtain'd her Frugal Board,
Then with ill-gotten Gold ſhe bought a Lord.
Corruption, Diſcord, Luxury combin'd,
Down ſunk the far-fam'd Miſtreſs of Mankind.
Hear, Righteous Prince! O hear us loud invoke
Thy Worth unblemiſh'd, to avert this Stroke:
Your ſelf ſo free from every Lawleſs View,
You ſcarce admit the Homage that is due.
Let other Monarchs, with invaſive Bands
Leſſen their People, and extend their Lands;

By

By gaſping Nations, hated and obey'd,
Lords of the Deſarts, that their Sword has made:
For Thee kind Heav'n a nobler Task deſign'd,
To fix thy Empire in thy Peoples Mind.
High on thy *Britiſh* Throne, to mark from far,
And calm the Billows of the riſing War;
To ſmooth the Frowns on fair *Europa*'s Face,
And force reluctant Nations to embrace.
As late the warring Winds, with mingled Roar,
Strugl'd to wreck, yet wafted you to Shore.
So ſhall the Storm, that threats your peaceful Land,
Roll harmleſs o'er, or Burſt where you Command.

CHARLES ARBUTHNOT,
Student of *Chriſt Church, Oxon.*

A

DISSERTATION,

CONTAINING

The Principles and Authorities upon which the Tables are founded.

CHAP. I.

Of the Antiquity and Inventors of Money.

THE Uſe of Money or ſtampt Metals in Commerce has been very ancient, and perhaps the Inventor of it is as hard to be diſcovered, as thoſe of other Arts.

As it is uſual in diſcourſes of this nature to aſcend as high as poſſible, we ſhall acquaint the Reader that the Inventor of Money was by ſome *Jewiſh* Writers believed to be *Cain*, *Adam*'s eldeſt ſon, to whom [a] *Joſephus* aſcribes it: this Author tells you that *Cain* was the firſt monied man, that he raught his band luxury and rapine; and broke the publick tranquility by introducing the uſe of Weights and Meaſures. (The word χρήματα in the Original may ſignify any

[a] Λύξων δὲ τὸν αὐτὸν πλήθει χρημάτων ἐξάρπαγῆς καὶ βίας, πρὸς ἡδονὴν καὶ λησείαν τὸς εὐτυχήματα παραχαλῶν, διδάσκαλος αὐτοῖς πονηρῶν ὑπῆρχεν ἐπιτηδευμάτων, καὶ τὴν ἁρπαγμοσύνην μὲν, ἣ πρότερον συνέζων οἱ ἄνθρωποι, μέτρων ἐπενοία καὶ σταθμῶν μετεσήσατο.

any ſort of poſſeſſion as well as money.) If arguments *a poſteriore* were to be uſed in this caſe, I ſhould be very apt to give *Cain* the honour of the Invention; were he now alive, I'm ſure it would rejoice his ſoul to ſee what miſchief it had made among mankind. His lineal deſcendent and name-ſake *Tubal-Cain*, probably muſt have had his art from him, [b] for he was *a great Artificer in Braſs and Iron.*

[c] That *Noah* or *Janus* underſtood it, may be very well ſupported by his Image found upon the firſt *Roman* Coins: one ſide was ſtampt with a *Janus bifrons*, and the other with a *Roſtrum* or Prow of a Ship. This is as good an argument as an Antiquary could wiſh for. The ſame is confirm'd by the Interpreter of *Homer* in *Iliad* 5. who ſaith that *Janus* firſt invented a Crown, a Ship, and Braſs Money.

[d] That there was current money in *Abraham*'s time is paſt doubt, tho' it's not ſure that it was ſtampt, for he is ſaid to be *rich in Cattle, in Silver and in Gold.* [e] *Abimelech* gave to *Abraham* as *Sarah*'s brother 1000 *Keſeph or pieces of Silver.* [f] *Joſeph* was ſold by his Brethren for 20 *pieces*, [g] and gave to his Brother *Benjamin* 300 pieces.

Amongſt profane Writers there is one [h] *Phido* an *Argive* or *Greek*, who is ſaid to be the firſt who ſtampt money; [i] but *Herodotus* with more reaſon aſcribes the invention to the *Lydians.* [k] *Julius Pollux* attributes it to *Erichthonius* amongſt the *Athenians* and *Lycians*: [l] Some to the *Naxians*, ſome to the *Phœnicians*, others to *Ionus* in *Theſſaly*, as appears by ſome verſes of *Lucan.* [m] *Cælius* gives it to a Lady, one *Hermodice* wife of *Midas* King of *Phrygia.* [n] Amongſt the *Romans* it ſtands between *Numa* and *Servius Tullius*: *Pliny* gives it to the latter, who was the firſt that ſtampt Braſs, which the

Romans

[b] Geneſ. c. 4. σφυροκόπος χαλκεὺς χαλκῆς καὶ σιδήρου, LXX. Interpretes. Malleator & faber in cuncta opera Æris & Ferri. [c] Plin. lib. 33. cap. 3. In una quidem parte Janus geminus ſeu bifrons, ex altera vero Roſtrum Navis fuit. [d] Geneſ. c. 13. v. 2. [e] Geneſ. c. 20. [f] Gen. 37. [g] Gen. 45. [h] Strabo lib. 8. [i] Herodot. lib. 1. πρῶτοι δὲ τῶν ἀνθρώπων, τῶν ἡμεῖς ἴδμεν νόμισμα χρυσῆ καὶ ἀργύρεα κοψάμενοι ἐχρήσαντο. [k] Jul. Pol. lib. 9.

[l] Primus Theſſalicæ rector telluris Ionus
In formam calidæ percuſſit pondera Maſſæ:
Fudit & argentum flammis, aurumque moneta
Fregit, & immenſis coxit fornacibus æra.
Illic quod populos ſcelerata impegit in arma,
Divitias numerare datum eſt ——

[m] Celius lib. 21. Antiqu. lect. [n] Plin. lib. 33. cap. 3. Servius Rex primus ſignavit Æs. antea rudi uſos Romæ Timæus tradit. Signatum eſt nota pecudum: unde & pecunia appellata.

Romans uſed before unſtampt. It ſeems an obvious invention by a publick Stamp to ſave the people the trouble of weighing and eſſaying. [o] Silver was ſtampt *A. U.* CCCCLXXXV, [p] and Gold was coined ſixty two years after. [q] On the other hand, *Suidas* affirms that it was *Numa* the ſecond King of the *Romans* who gave them the firſt money of Braſs and Iron; for before his time they had no other but what was made of hides and ſhells, and that they were called from his own name *Nummea*. Thus much of the original of money; which has been a great conveniency in the commerce and affairs of mankind: but whether that will balance the miſchief it has done, I ſhall not determine.

CHAP. II.

Of the Metals and other Materials that were commonly ſtampt into Money, and of ſome of the moſt common Impreſſes.

THE Metals that Money was commonly made of amongſt the *Greeks*, *Romans* and *Hebrews*, were Braſs, Silver, and Gold; in the language of thoſe ſeveral nations, *Æs*, *Argentum*, *Aurum*; χαλκὸς, ἄργυρος, χρυσὸς; *Nahus*, *Keſeph*, *Zahaw*.

The firſt Coin being made of Braſs, *Æs*, gave the Denomination to money in general among the *Romans*, and the whole turn of their expreſſion is derived from it. [r] *Ære mutare*, to buy or ſell. *Æs alienum*, debt; *Æs ſuum*, what is owing to us. *Æs circumforaneum* by *Cicero* is underſtood money employed in Uſury. *Ærarium*, the Treaſury, or place where the money is kept. *Ærarii*,

[o] Ibid. Argentum ſignatum eſt anno Urbis CCCCLXXXV. Q. Fabio Conſule, quinque annis ante primum bellum Punicum. [p] Ibid. Aureus nummus poſt annum LXXII percuſſus eſt quam argenteus. [q] Suidas in voce ἀργύρια. [r] Plin. & Columella.

rii, Officers of the Mint. *Ærarii Milites*, Soldiers that ſerved for pay. [b] *Æruſcare*, *Æruſcatores*, thoſe who got money by ſcandalous ways. [c] *Adærare*, to ſet a price upon a thing. [d] *Obæratus*, oppreſs'd with debt.

Argentum, Silver, was uſed after the ſame manner for money in general, tho' not ſo frequently. *Argenti ſitis & fames*, a deſire of money, or covetouſneſs. *Argentum conſumere*, to ſpend money. *Argento aliquem circumvenire*, to cheat. [e] *Argentum locare fœnori*, to lay out money at intereſt. *Argentariam facere*, to be an Uſurer. *Argentariam diſſolvere*, to go off the Exchange, or to leave off being an Uſurer. [f] *Argentum præſentarium*, ready money.

Aurum or Gold is uſed after the ſame manner. [g] *Auri ſacra fames*, deſire of Riches. *Vendidit hic auro patriam*, a corrupt Raſcal that ſold his country for Gold or money. The *Engliſh* ſeldom uſe Silver, but often Gold, for money in general.

[h] The *Greeks* uſed χαλκὸς and χαλκίον for money in general. ἄχαλκος without money: ἀχάλκειν to be poor. [i] χαλκίζειν to play for money at even and odd. [k] χαλκιδῖτις *Meretrix*, &c.

Ἀργύριον is uſed in the ſame ſenſe by the *Greeks* for a general appellation of money. [l] τὸ δ' ἀργύριον καλεῖται χρήματα καὶ νομίσματα, that is, Money and Riches are called ἀργύριον. [m] Ἀργυρολογεῖν to collect money. Ἀργυρολόγος, a Collector of Taxes, &c.

Χρυσὸς is uſed in the ſame ſenſe. [n] ἄχρυσοι, for poor, or deſtitute of money.

Nahus, *Keſeph* and *Zahaw* amongſt the *Hebrews* ſignify money in general; only *Keſeph* when joined to a number ſignifies a piece of Silver of a certain value: of which there are innumerable Examples in the Scripture. Thoſe who are skill'd in the *Hebrew* tongue ſay that there are a great number of words in that Language to ſignify Gold.

As

[b] Feſtus Pompeius. [c] In Cod. lib. 11. [d] Livius & Cæſar. [e] Cicero in Verrem. [f] Plautus. [g] Virgilius. [h] Heſychius in voce χαλκὸς. τοῦτο ὁπὶ τῦ χρυσῦ καὶ τῦ ἀργυρίυ ἔλεγον. [i] Apud Pollucem. [k] Apud Joſephum. [l] Pollux lib. 3. [m] Thucyd. Hiſt. 23, 8. [n] Plato lib. 3. de Legibus.

Braſs, or Copper, Silver and Gold have been the common metals for Coin; yet it has been made by barbarous Nations, and in neceſſitous Times, of other Materials; as Lead, Tin, Iron, Leather, Shells, and even of Wood and Barks of Trees: inſtances of which might be given, but are of little value as to the Coin it ſelf.

Nummus ſome derive from *Numa* as was hinted before, tho' it was a word in uſe amongſt the *Greeks*.

Moneta (from whence our word *Money*) comes from *Moneo*; becauſe it admoniſheth of the price, value, weight, *&c.*

Pecunia was ſo called from the figure of Cattle with which it was firſt ſtampt by *Servius Tullius*. And Robbing of the publick was called *Peculatus*. *Peculium, quaſi puſilla pecunia*, a ſmall Patrimony. *Pecuniam exercere*, to imploy money. *Otioſa pecunia*, ἀργὸν χρῆμα, according to *Demoſthenes*, money lying idle without intereſt. Some are of opinion that *Pecunia* was ſo called, from [o] *Pecudum Corio*, from the Hides of beaſts of which it was firſt made.

In *Greek* pieces of money were call'd χρήματα from their uſe; χρῆμα, χρήματα, denoting little pieces of money as fit to exchange greater.

I need not inſiſt upon the uſe of money in the Commerce and Traffick of mankind, the principal is that of ſaving the commutation of more bulky Commodities.

Merchandiſing both by Money and Exchange of Commodities was uſed in *Homer*'s time. There is a great diſpute among the Lawyers, [p] whether *Glaucus* his exchanging his golden Armour with the braſen one of *Tydides* was to be reckon'd emption or commutation.

I ſhall not trouble the Reader with the different names of pieces of money ariſing from their different form, weight, quantity, from the Princes, States, Nations, Times, Places and Occaſions, under which they were coined.

It may be of more uſe to mention ſome of the uſual Types or Figures, with which different Nations ſtamped their Coin.

[o] Iſodor. Etymol. lib. 16. cap. 17. [p] Homer. Iliad. 7.

[q] The

[q] The *Ætolians* ſtamped upon their Coin *Hercules* with his Club breaking *Achilous*'s horn.

Alexander, *Bucephalus* or his own Image enthroned, with a Bird in hand, or a winged Victory.

[r] The *Argives*, a *Wolf* or a [ſ]*Mouſe*.

The *Aſpendii*, *Palæſtritas*, Wreſtlers.

Aſia, a boy riding on a *Dolphin*.

Athenians, an *Owl* with *Pallas*, likewiſe an *Ox*.

Auguſtus Cæſar, the Conſtellation of *Capricorn* under which he was born: and on his Copper Money, the figure of *Cicero*.

Bœotians, a *Fly* with a *Stag*: a *Cantharus* of *Bacchus* with a Bunch of Grapes.

Brutus, on one ſide his own image, on the reverſe a *Pileus* or bonnet with two Daggers.

Byzantines, a *Dolphin* twiſted about a *Trident*.

[t] *Cephalenes*, a *Horſe*.

Chii, a *Harpye*, likewiſe a *Homer*.

Corcyrians, a *Triremis* or Gally rowing.

Corinthians, *Pegaſus* with a *Neptune* ſitting and carrying his *Trident*.

Crotoniatæ, the *Delphick Tripode*.

Cyrenæans, *Ammon*, on the reverſe the *Silphium*, a plant of whoſe juice the *Aſſa fætida* is made, whence it is called the *Succus Cyreniacus*.

Cyzicenians, a *Lyon*.

Dardania, two *Cocks* a fighting.

Demetrius, a *Neptune Redux*, or come back.

Dymæans, a *Goat* tearing a *Frog*.

Eretrienſes, a *Diana*.

Hadrian the Emperor, the figure of *Juſtice ſitting*.

Hebrews, on their *Shekel*, *Aaron*'s Rod budding, with a *Cenſer* ſmoaking.

Hiſtæans, *Neptune* on a *Whale*.

[u] *Iaſenſes*, a Boy riding on a *Dolphin*.

Italians,

[q] Hoſtius rei Numm. Vet. pag. 60. [r] Interpres Sophoclis. [ſ] Julius Pollux. [t] Pollux. [u] Plutarch.

Italians, a double-faced *Janus* with a *Ship*, likewiſe an *Ox* and a *Sheep*.

Leucadians, a Ship.

Livia, a *Ceres legifera*, or reaping.

Locrians, ſome a *Star*, ſome a *Graſhopper*, others a *Pugil*.

Lycians, a *Lyon* with a *Goat* upon him.

Macedonians, a *Hercules's Club*, and *Goat's Horns*.

Mytelenians, the image of *Sappho* their Citizen.

Metapontinians, *Ceres* with an Ear of Corn.

Naxians, a bearded *Bacchus*, and a *Satyre* with a Cup.

Parians, upon their *Drachms* an *Aratus*.

[x] *Perſians*, an *Archer*.

[y] *Peloponneſians*, a *Teſtudo* or a Shell.

Philip of *Macedon*, *Bigas*, *id eſt*, Chariots with two horſes; or his own Buſt; on the reverſe himſelf enthroned with a Bird in hand: which reverſe his ſon *Alexander* took from him.

Phocenſes, an *Eagle* and a *Tripode*.

Pyrrhus, a *Pallas* with her Spear enthroned.

Reginians, a *Hare* and a *Chariot*.

Samians, a *Peacock*.

[z] *Seleucus Nicator*, an *Anchor*.

Tarentines, their founder on a *Dolphin*.

[a] *Tenedians*, a *Bipennis* or Ax, with two Heads of a Man and a Woman averſe, a Symbol of the puniſhment of Adultery.

Thaſians, a *Perſeus*; upon their *Tetradrachms* a *Hercules* their preſerver, and a *Bacchus* crowned.

Thebans, *Hercules's Bipennis*, a weapon which we may tranſlate a Poll-Ax.

Theſſalians, a *Horſe*.

Trachinians, *Hercules* ſitting.

Trœzenians, a *Trident*, on the reverſe a *Minerva*.

Trojans, *Troiam* a Sow.

Veſpaſian, a *Dolphin* and an *Anchor*.

The

x Plutarchi in Laconicis. y Heſych. z Nico. leonicus lib. 2. cap. 20. de varia hiſtoria. a Stephanus de Urbibus.

The *Romans* commonly inſcribed the heads of their *Emperors*.

There are many other Stamps. *Vide Camerarii hiſtoriam rei Nummariæ.*

The value and weights of the common current Coins the Reader will find in the following parts of this book. There were ſome very rare Coins ſtruck of a pound weight, both of Gold and Silver, particularly thoſe of Gold which the Emperor *Conſtantine* ſent to *Chilperick* King of the *Franks*. [b] There were but fifty of them, with this Inſcription, on one ſide, TIBERII CONSTANTINI SEMPER AUGUSTI. on the other, GLORIA ROMANORUM.

Heliogabalus the Emperor ſtruck ſome Gold Coins of two pound weight, which his Succeſſor *Alexander Severus* ordered to be melted down.

The Ancients were as careful as we to Coin their Money in due weight and fineneſs, and keep it up to the Standard; only in times of exigence they have done what has been imitated by all Governments, diminiſhed both the weight and fineneſs, of which more afterwards. There was this difference between their inſpection of money and ours, [c] that the care of the Coinage was committed to the inferiour Magiſtrates, and I don't find that they had a publick tryal by a *Pix*, as we ſolemnly practiſe in this Country.

The penalties againſt adulterating the Coin, tho' not the ſame, were very ſevere in all Nations. One [d] *Diogenes Sinopæus* was only baniſhed for it. [e] Among the *Ægyptians*, both the hands were cut off. [f] By the civil law they were thrown to wild beaſts; which was founded upon the *Cornelian* Law, whereby they were to undergo the penalty of Forgery, and the concealer of the Crime was equally guilty. By the ſame Law it was provided that none ſhou'd buy Coin made of Tin or Lead. [g] In Falſe-Coinage Slaves were allow'd to diſcover their Maſters, and they were rewarded with their

[b] Georg. Agricola. [c] Cicero lib. 3. de Legibus. [d] Diogenes Laert. lib. 6. [e] Diodor. Sicul. lib. 2. [f] Ulpian. quicunque, ff. ad L. Corneliam de falſis. [g] 153 ff. ubi quis agere, &c.

their freedom for it at the publick Charge: I ſuppoſe that was in the caſe where they ſerv'd another, beſides their proprietor?[x] [h] The Emperor *Tacitus* enacted that counterfeiting Coin ſhould be Capital, with the forfeiture of goods and chattels. It was enacted Treaſon by the Emperor *Conſtantine*, as amongſt us.

[i] *George Agricola* reckons ſeven kinds of falſe money, too long here to enumerate.

CHAP. III.

Of ROMAN COINS.

Of the AS *or* ÆS.

THE *Romans* reckon'd their Money by *Æs*, *Aſſes*, *Seſtertii* or *Nummi*, *Denarii*, *Solidi* or *Aurei*, *Pondo* or *Libra*.

Æs, *Æris*, beſides its ſignification of Money in general, denoted a particular Coin made of that Metal.

[a] There is mention made of *Æs grave*, which was paid by weight and not by tale.

Æris in the genitive is uſed for an adjective, *pro Æreis nummis ſeu Aſſibus*. *Mille Æris* and *Mille Aſſes* ſignify the ſame thing, whereof there are numberleſs Examples.

[b] This Coin was at firſt *libralis* or of a pound weight, and ev'n when it was diminiſhed, retained the name of *libella*. So *Dupondius* denoted two *Aſſes*. The Emperor *Juſtinian* forbade the calling the Students of the Law of one year's ſtanding *Dupondii*, which name was given them it ſeems in contempt. [b] The firſt impreſs of this Coin was a *Janus geminus*, and on the reverſe the *Roſtrum* of a Ship.

[h] Flav. Vopiſcus in ejus vitâ Agric. fine lib. 1. de pretio metall.
[i] Geor.
[a] Livy lib. 4. in fine. Et quia nondum argentum ſignatum erat, grave æs plauſtris quidem in Ærarium convehentes, ſpecioſam collationem faciebant.
[b] Plin. lib. 34. cap. 3.

x There is no reason for this supposition, for in cases of High Treason it was lawful for Slaves to inform against their Masters. Vide Smith p. 160, & his Errata p. 295. Vide also Rosin. 600 Langwith.

As not only ſignified a piece of money, but any integer, from whence is derived the word *Ace* or *Unit*. Thus *As* ſignified the whole inheritance. *Hæres ex Aſſe*, the Heir of the whole eſtate. Juſt ſo the *jugerum* or Acre of land being reckon'd the integer was divided into 12 *Unciæ* as the *As*, after the manner ſet down in the Tables.

There is often mention made of the *Quadrans* and *Teruncius* as pieces of Coin. [b] The *Quadrans* is called by *Pliny Triuncius*: both *Quadrans* and *Teruncius* are uſed to ſignify the ſmalleſt Coin. Only *Quadrans* was underſtood to be the fourth part of the *As Libralis*, and *Teruncius* the fourth of a *Libella* or diminutive *As*. To be called *Quadrantaria* was the utmoſt reflection on a Gentlewoman. [c] To this *Cicero* alludes in his Oration for *M. Cælius*. *Cæcilius* the Poet call'd *Clytemneſtra* ſo. *Quadrantilla* is the name of a Strumpet in *Petronius*.

[d] That the *Triens* or one third of the *As* was a Coin, is made out from a ridiculous Story in *Pliny*. The family of the *Servilii* had a *Triens* which they fed on feſtival days with Gold and Silver (proper aliment for a piece of money) and as it throve or decreaſed, they calculated the fate of the family. *Pliny* tells you the Story from the relation of an old Slave, one *Meſſala*.

[e] The *As* was by degrees diminiſhed: from the pound weight (as is told at length by *Pliny*) it fell to two ounces in the firſt *Punick* war, afterwards when *Hannibal* invaded *Italy* to one ounce, then by the *Papirian* law to half an ounce. Theſe alterations were occaſioned by the neceſſities of the commonwealth; but to be ſure

[b] Plin. lib. 33. cap. 3. [c] Cic. in Orat. pro M. Cælio. Niſi forte mulier potens quadrantaria illa permutatione familiaris facta eſt balneatori. [d] Plin. lib. 33. cap. 13. Unum etiamnum Æris miraculum non omittemus, Serviliæ familia illuſtris in faſtis, Trientem Æreum paſcit Auro & Argento, conſumentem utrumque; origo atque natura incomperta eſt mihi, verba ipſa ea de re Meſſalæ ſervi ponam. Serviliorum familia habet Trientem ſacrum cui ſumma cum cura & magnificentia ſacra quotannis faciunt, quem ferunt alias creviſſe, alias decreviſſe videri: & ex eo aut diminutionem aut honorem familiæ ſignificari. [e] Et placuit Denarium pro decem libris Æris, Quinarium pro quinque, Seſtertium pro dupondio ac ſemiſſe. Librale autem pondus Æris imminutum bello Punico primo, cum impenſis Reſp. non ſufficeret; conſtitutumque ut Aſſes ſexantario pondere ferirentur. Itaque quinque partes factæ lucri, diſſolutumque Æs alienum.—— Poſtea Hannibale urgente, Q. Fabio Maximo Dictatore, Aſſes unciales facti: placuitque Denarium ſedecim Aſſibus permutari, Quinarium octonis, Seſtertium quaternis. Ita Reſpublica dimidium lucrata eſt.—— Mox lege Papiriana ſemiunciales Aſſes facti. Livius Druſus in Tribunatu plebis octavam partem Æris Argento miſcuit.

ſure the plenty of Silver and Gold would have done the ſame thing, and brought down ſuch an enormous Braſs Coin.

As amongſt the *Latines* is put for the diminutive of money, *non Aſſis facere, ad Aſſem omnia perdere.*

From *As* is derived *Treſſis*, *Quadreſſis*, *Nonuſſis*, *Decuſſis*, *Vigeſſis.*

Some think that *Aſſiduus* likewiſe comes from *As*, a man intent upon the penny.

Of the SESTERTIUS.

SEſtertius is ſo called, *quaſi Semiſtertius*, according to a *Greek* Figure: for ἕβδομον ἡμιτάλαντον, which literally tranſlated ſignifies a ſeventh half Talent; yet according to *Voluſius Mætianus*, ſignifies ſix whole Talents and one half: So a *Seſtertius* which contains 2 *Aſſes* and one half, or *duos Aſſes cum tertio ſemiſſe*, is ſo called from *Semiſtertius.* [a] This is affirm'd by *Varro*; and likewiſe by [b] *Vitruvius*, who ſaith, *Etiam quartam Denarii partem, quod efficiebatur ex duobus Aſſibus et tertio ſemiſſe, Seſtertium vocitaverunt.* And the ſame is aſſerted by [c] *Priſcianus.* The *Seſtertius* was a Silver Coin, and never of Braſs; it was equal to the fourth part of a *Denarius*, according to *Feſtus Pompeius* and the above-quoted Paſſage of *Vitruvius*, and ſeveral others to be found in Authors. *Cicero* againſt *Verres* ſpeaking of the price of Corn, makes 3 *Denarii* to be the ſame with 12 *Seſtertii.*

a Varro lib. 4. de ling. Lat. lib. 3. cap. 1. b Vitruv. c Seſtertius olim dupondius & ſemis, id eſt, duæ libræ & ſemis, quaſi Semiſtertius, &c.--- Dupondius enim & ſemis, antiquus Seſtertius eſt.

Of the NUMMUS.

THE *Nummus* when mention'd as a piece of money was the ſame with the *Seſtertius*. *Cicero* againſt *Verres* ſaith, *Cogit Scandilium quinque illa millia nummum dare Apronio*, and immediately after adds, *Cogit Scandilium Apronio H. S. quinque millia mercedis nomine ac præmii dare*. Where it appears that 5000 *Nummi* are put for 5000 *H. S.* or *Seſtertii*. [d] So *Pliny* and [e] *Varro* ſpeaking of the gain ariſing from the fattening of Peacocks, the former calls it 60000 *Seſtertii*, and the latter 60000 *Nummi*.

Beſides *Seſtertius* and *Nummus* are frequently join'd by Authors, and then ſignify the ſame that either doth ſeparately. This is plain from [f] *Columella*, [g] *Valerius Maximus* and others. So *Mille Nummi*, *Mille Seſtertii*, and *Mille Seſtertii Nummi* ſignify the ſame; as do likewiſe *Mille Nummûm*, *Mille Seſtertium*, and *Mille Seſtertium Nummûm*.

The *Greek* Computations proceed upon the ſame Suppoſition, the *Denarius* and the *Drachma* being reckon'd equal. *Plutarch* in *Sylla* ſaith that 1000 *Nummi* was equal to 250 *Drachmæ*, conſequently one *Drachm* is equal to four *Nummi*. [h] *Ariſtotle* ſaith that a *Nummus* was equal to 3 *Semioboli*, which make the fourth part of a *Drachm*. *Plutarch* ſaith that *Cæſar* left by will to every Citizen 75 *Attick Drachms*, and *Suetonius* ſaith he left to each of them 300 *Nummi*.

Seſtertium in the neutral gendre ſignifies *Mille Seſtertiûm Nummorum*. It is a great diſpute among Authors whether they are the ſame word. Some are of opinion that as a *Seſtertius* ſignified two pounds and a half of Braſs, according to the weight of the firſt *Aſſes*; ſo *Seſtertium* ſignified two pounds and a half of Silver, which ſeems to be but a groundleſs imagination; and *Gronovius* is

[d] Plin. lib. 10. cap. 20. [e] Varro lib. 3. cap. 6. de re Ruſtica. [f] Colum. lib. 1. & 3. [g] Valeri. Max. lib. 5. cap. 2. [h] Ariſtot. apud Pollucem lib. 9. Δύναται δὲ ὁ νόμμος τρία ἡμιωβολία.

is certainly in the right, who takes *Seſtertiûm* in the genitive, and when they ſay *Mille Seſtertium*, the ſubſtantive *Corpora* is underſtood. Let the Grammatical reaſon of the Phraſeology be as it will, it is certain that *Seſtertium* ſignifies *Mille Seſtertii Nummi*. The Marks of the *Seſtertius Nummus* are IIS. LLS. H.S. H-S. which Characters denote 2 ½ *Aſſes*. *Budæus* ſaith he hath obſerved that the *millenary Seſtertium* in good Manuſcripts is marked with a line croſs the top thus $\overline{\text{HS}}$.

The Reader muſt ſtill remember that

Mille Seſtertii,
Mille Nummi,
Mille H S,
$\overline{HS}$,
Mille Seſtertium,
Mille Nummum,
Mille Seſtertii Nummi,
Mille HS. Nummum,
Æris 2500,
Denarii 250,
Drachmæ 250,

denote the ſame Sum, *viz.* according to the Tables 8 *l.* 1 *s.* 5 ½ *d.*

He muſt likewiſe obſerve that in ſpeaking of Sums above a thouſand, there is often a double *Eclipſis*, ſometimes of the word *Seſtertium* or its mark, ſometimes of the word *Mille*. In the firſt and ſecond of thoſe *Epigrams* at the bottom of the page † H S or *Seſtertium* is underſtood. In the others *Millia*. There is another double *Eclipſis* to be obſerv'd, when they uſe the numeral *Adverbs* they leave out *Centena Millia*. Thus *Cicero* in 3 *Verrina*. H S *bis & tricies in ſingulos annos Verri decernebatur, quod aratoribus ſolveret.*

† Pauca Jovem nuper cum millia forte rogarem. Martial. lib. 6.
Quid promittebas mihi millia Gaure ducenta
Si dare non poteras millia Gaure decem.
Septingenta Tito debet Lupus——
Quadringenta tibi non ſunt, Charetſtrate ſurge. Lib. 5.

ret. Centena Millia is underſtood. So that the Sum in Cyphers muſt be thus expreſſed 3200000 *Nummi Seſtertii*, or 3200 *Seſtertia*; a *Seſtertium* being equal to 1000 *Nummi Seſtertii*. This is clearly enough expreſſed in the Tables. If the Sum is to be reduced to *Nummi Seſtertii*, then *centum* and *mille* both are underſtood, and that *Decies* or 10 muſt be multiplied by 100000. If you would reduce the Sum to *Seſtertia*, the word *centum* being then underſtood, it muſt be multiplied only by 100: Thus *Decies* HS is 1000000 *Nummi Seſtertii*, or 1000 *Seſtertia*. So that *Decies centena millia* HS, or *Decies* without HS. (δεκιες *apud Plutarchum in Antonio*) *Æris vicies quinquies, denariorum* 250000, *Drachmarum* 250000, are to be found in different Authors and expreſs the ſame Sum, *viz.* 8072 *l.* 18 *s.* 4 *d.* But

Mille Seſtertii,
Mille Seſtertia,
Millies HS Seſtertium

expreſs very different Sums.

Mille Seſtertii is only 1000 *Nummi Seſtertii*, in *Engliſh* money 8 *l.* 1 *s.* 5 ½ *d.* which makes a *Seſtertium*.

Mille Seſtertia is 1000 times that Sum, *viz.* 8072 *l.* 18 *s.* 4 *d.* But *millies HS*, is 100000 times that Sum, or 807291 *l.* 13 *s.* 4 *d.*

When the numbers have a line over them, *Centena Millia* is underſtood, as in the caſe of the numeral Adverbs; thus HS. $\overline{MC}$ ſignifies the ſame with *Millies Centies* HS, that is, 110,000,000 *Nummi*, or 888020 *l.* 16 *s.* 8 *d.* whereas HS. MC. without the Croſs Line denotes only 1100 *Nummi*, or 8 *l.* 17 *s.* 7 ½ *d.*

When the numbers are diſtinguiſhed by points in two or three different orders, the firſt towards the right hand ſignifies Units, the ſecond thouſands, and the third hundred thouſands: for inſtance III. XII. DC. HS. denotes 300000, 12000, and 600 HS, in all making 312600 *Nummi*, or in *Engliſh* money 5047 *l.* 3 *s.* 9 *d.* *Pliny* ſaith that ſeven years before the third *Punick* war, there was in the *Roman* Treaſury *Auri Pondo* XVI. DCCCX,

DCCCX, *Argenti Pondo* XX. LXX. *& in numerato* LXII. LXXV. CCCC. which is to be thus interpreted, 16810 Pounds of Gold, 22070 Pounds of Silver, and in ready money 6275400 *Nummi*, or 50741 *l.* 10 *s.* 2 ½ *d.*

I know by experience that thoſe Expreſſions in ancient Authors create a confuſion in the minds of the Readers, and that they have no notions of the numbers, in reading the Authors. Therefore I hope to be excuſed in being a little particular on this Subject.

Of the DENARIUS.

THE *Denarius* was the chief Silver Coin among the *Romans*. As a weight it was the ſeventh part of a *Roman* Ounce. It is from this Standard that both the value of the *Roman* Weights and Coins in the Tables are deduced. In the ſetling of which I have follow'd Mr. *Greaves*, who may be juſtly reckoned a Claſſical Author on this Subject.

That induſtrious, learned, and honeſt perſon affirms that having in *Italy* and elſewhere peruſed many hundred *Denarii Conſulares*, he found by frequent and exact Tryal the beſt of them to amount to 62 Grains *Engliſh*, ſuch as he had carefully taken from the Standards of the *Troy* or Silver Weights kept in the Tower of *London*, and in *Goldſmiths-Hall*, and in the Univerſity of *Oxford*. He arrives very near at the ſame concluſion by two Experiments that were made of the weight of water contained in the *Congius* of *Veſpaſian*, which was 10 *Roman* Pounds. One Experiment was made by *Villapandus* on the *Congius* it ſelf, and the other by *Gaſſendus* upon a model. By the firſt of theſe experiments the weight of the *Denarius* or the ſeventh part of a *Roman* Ounce comes out 62 ⅐ Grains, by the ſecond 62 $\frac{161}{175}$: neglecting the Fraction, he has ſtated the value 62 Grains, or 7 pence 3 farthings *Engliſh*, allowing 8 *Engliſh* Grains to the Silver Penny. This valuation I have follow'd

follow'd in the Computation of Sums, *viz.* ſuppoſing Silver at 5 Shillings the Ounce, which although not exactly true, (for by the preſent Standard of the Coinage, 62 Shillings, or 3 Pound 2 Shillings, is coined out of one pound weight of Silver.) ſince we don't know the fineneſs of the *Roman* money, may be a Suppoſition as good as any other, and prevent ſome trouble in computation.

The *Roman* Ounce is certainly our *Averdupois* Ounce,× but I muſt own that I have differ'd in a ſmall matter from Mr. *Greaves* in ſettling the quantity of *Troy* Grains contained in an Ounce *Averdupois*; for ſuppoſing the *Averdupois* Pound to be to the *Troy* Pound as 175 to 144, and conſiſting of 16 Ounces, makes the *Roman* or *Averdupois* Ounce to be 437 $\frac{1}{2}$ *Troy* Grains, and the *Roman* Pound 5250 Grains. The proportion that was given me as a true one, was 17 to 14, neglecting the laſt Figures, and conſequently the proportion of the *Roman* or *Averdupois* Ounce to the *Troy* Ounce is preciſely as 51 : 56, and by this the *Roman* pound according to my Tables will conſiſt of 5245 $\frac{5}{7}$ Grains *Troy*, which is 4 $\frac{2}{7}$ Grains leſs in the Pound, and if it be a miſtake is a very inconſiderable one. The *Denarius* according to my ſuppoſition will come out 62 $\frac{22}{49}$ Grains: the fraction is not to be neglected in reckoning the Pound. This makes it highly probable that the *Romans* left their Ounce in *Britain* which is now our *Averdupois* Ounce; for our *Troy* Ounce we had elſewhere.

That the *Denarius* was the 7th part of the *Roman* Ounce, is clear from multitudes of paſſages. *Celſus lib.* 5. *cap.* 17. *Sed & antea ſcire volo in uncia pondus denariorum eſſe ſeptem.*

Another way that Mr. *Greaves* made uſe of to find the weight of the *Denarii*, was by the weight of *Greek* Coins, eſpecially *Attick Tetradrachms*, for the *Denarius* was always reckon'd equal to the *Drachm*; but thoſe experiments bring out the *Denarius* heavier: for weighing many *Attick Tetradrachms* with the image of *Pallas* on the forepart, and of the *Noctua* on the Reverſe, he found the beſt of thoſe to be 268 Grains, that is each particular *Drachma* 67 Grains, and from the Golden

Didrachms

× This is more easily said than proved. I have just reason to think that the Avoirdupois Ounce exceeds the Roman by at least 3,46 gr.

Langwith

Didrachms much the ſame. He mentions one from *Snellius* that weighed 134,5 of our *Troy* Grains, which makes it 67 ½. That the ancient *Roman Denarius* and *Attick Drachma* were reckoned equal, appears partly from what has been obſerv'd before; and further from the Teſtimony of *Pliny*, who lived from the time of *Veſpaſian* to that of *Trajan*,X who affirms expreſly [a] that the *Drachma Attica* had the weight of the Silver *Denarius*. *Cleopatra* [b] affirms that the *Italick Denarius* was one *Drachm*. *Cicero* [c] naming the *Donative* of *Octavius* to the veteran Soldiers, calls it 500 *Denarii*, and *Dion* [d] calls the ſame 500 *Drachms*. *Galen* [e] ſaith that by a *Drachm* is meant the ſame weight the *Romans* call a *Denarius*. This is plain from an interpretation of [f] *Aulus Gellius*. *Plutarch* computes the Sums which the *Romans* expreſs by *Seſtertii* in *Drachms* at 4 *Seſtertii* to the *Drachm*, *viz.* the number of *Seſtertii* in the *Denarius*. *Strabo* [g] ſaith that in the Siege of *Caſilinum* a mouſe was ſold for 200 *Drachms*, this *Valerius Maximus* [h] tranſlates 200 *Denarii*. *Athenæus* [i] ſaith that 400 *Attick Talents* make 240 myriads of *Denarii*, that is, 2,400,000 *Denarii*, = 400 *Talents*, or one *Talent* = 6000 *Denarii*, the number of *Attick Drachms* in a *Talent*. *Feſtus Pompeius* ſaith in expreſs Terms that an *Attick Talent* contains 6000 *Denarii*. The ſame appears by comparing [k] *Livy* with *Polybius*.

I have been the more copious in quotations upon this Subject to ſhew the general conſent of Authors of all ages and times in the equality of value of the *Attick Drachm* and *Roman Denarius*. And it would bring in a great confuſion to change that way of reckoning, but then the difficulty is how to preſerve the equality between two Coins which appear ſo different in weight, as 62 and 67 Grains.

a Plin. lib. 21. cap. ult. Drachma Attica Denarii argenti pondus habet. b Cleopatra, τὸ ἰταλικὸν δηνάριον ἔχει δραχμὴν α. c Cicero lib. 16. Epiſt. ad Atticum. Octavium veteranis militibus, quiqui Caſilini & Calatiæ erant, dediſſe donativum denarios quingenos, quo eos in ſuam ſententiam perduxit d Id Dio. lib. 45. refert καὶ ἔδοκεν ἐνθὺς τότε κατὰ πεντακοσίας δραχμὰς. e Galen. lib. 8. cap. 3. de Medicam. compoſit. πρόδηλον δὲ ὅτι δραχμὴν λέγομεν νῦν ἐν τοῖς τοιούτοις ἅπασιν. ὅπερ Ῥωμαῖοι δηνάριον ὀνομάζουσιν. f Gellius. lib. 1. cap. 8. g Strabo lib. 5. h Val. Max. lib. 7. c. 6. i Athen. lib. 4. Dipnoſoph. k Liv. lib. 4. Decad. 4.

X This is a miſtake. See Maſon's Life of Pliny Junior, p. 37. Langwith.

I ſhall in the firſt place give you *Greaves*'s Solution of this Difficulty, in his own words, *viz.* "Firſt that the *Denarius* and *Attick Drachm* being diſtinct Coins of different States, and not much unequal in the true weight, it is no wonder, eſpecially in *Italy* and in the *Roman Dominions*, that they ſhould paſs one for another: No more than that the *Spaniſh Rials* in our Sea-Towns in *England*, ſhould paſs for *Teſtars*; or the quarter of the *Dolar* be exchanged for our *Shillings*: whereas the *Rial* in the intrinſical valuation, is better than our *Teſtar* by four grains, and ſomewhat more; and the quarter of the *Dolar* is better than our *Shilling* by more than eight Grains, or a penny; but becauſe they want the Valuation, Character and Impreſſion of our Princes, which I call the *Extrinſick* of Coins, therefore doth the *Spaniſh* money fall from its true value with us, and ſo would ours do in *Spain*. By the ſame Analogy muſt we conceive the *Attick Drachms*, tho' in the intrinſick they were ſomewhat better worth than the *Denarius*. And this ſeems to be implied by *Voluſius Metianus*: *Victoriatus nunc tantundem valet, quantum quinarius olim. At peregrinus nummus loco mercis, ut nunc Tetradrachmum & Drachma habebatur.* Which words of his, *loco mercis*, plainly ſhew they made ſome gain of the *Tetradrachmum* and *Drachma*: As our Merchants and Goldſmiths do of the *Spaniſh Rials*, and quarters of a *Dolar*, which they could not if they were preciſely equal, but muſt rather be loſers in the melting or new coining of them. And therefore all modern Writers that have treated of this Argument, ſome of them making the *Drachma* leſs than the *Denarius*, others equal, but none greater, have been deceived by a double Paralogiſm, in ſtanding too nicely upon the bare words of the Ancients, without carefully examining the things themſelves: Firſt in making the *Denarius* and *Attick Drachm* preciſely equal, becauſe all ancient Authors generally expreſs the *Attick Drachm* by the *Denarius*, or the *Denarius* by the *Drachm*: either becauſe in ordinary Commerce and vulgar eſtimation, they paſſed one for another, in the *Roman* State;

" State; or elſe if any were ſo curious to obſerve their difference, " as ſurely the Κολλυβισαὶ were, yet by reaſon of their nearneſs, " and to avoid fractions, and having no other names of Coins " that were preciſely equal, whereby to render them, therefore all " *Greek* and *Latin* Authors mutually uſed one for the other. And " ſecondly becauſe ſome Writers (as *Dioſcorides* and *Cleopatra*) af- " firm that the *Roman* Ounce contained eight *Drachms*, therefore " modern Authors infer, that the *Denarius* being equal to the " *Drachm*, and eight *Drachms* being in the *Roman* Ounce (as ſo " many were in the *Attick*) that therefore there are eight *Denarii* " in the *Roman*, and conſequently that the *Roman* and *Attick* " Ounces are equal. Whereas *Celſus*, *Scribonius Largus*, and *Pli-* " *ny*, as we ſhewed before, expreſly write that the *Roman* Ounce " contain'd in their time, (which was after *Dioſcorides*,) ſeven *De-* " *narii*. And being natural *Romans*, and purpoſely mentioning " the proportion of the *Denarius* to the Ounce, thereby the better " to regulate their Doſes in Phyſick, it is not probable but they " muſt better have known it than the *Grecians*." But I am afraid this Solution will not be ſufficient to anſwer about 5 *per Cent.* difference in the value of the Coins. If an *Attick Drachm* of 67 Grains paſs'd for a *Roman Denarius* of 62, the Exchange was very much on the *Roman* Side. ×

The following Tables were publiſh'd before the learned Biſhop *Hooper*'s ingenious *Enquiry into the State of ancient Meaſures* appeared, which has given a great many new lights in this intricate Subject, and perhaps what he ſuggeſts may be an anſwer to this difficulty: his words are as follows, page 44. " So is the " proportion, as well of the *Attick* Weight, as of their Coin well " known: But the value of each piece not ſo well aſcertained as " one could wiſh. For the *Drachma*, from whence all their money " is beſt eſtimated, and which is alſo the principal weight, is very " differently ſtated. Our accurate Mr. *Greaves* upon the weigh- " ing of many *Attick Tetradrachms*, found ſome, the beſt he ſaith, " of 268 Grains, which give 67 for the *Drachma*: And examin-

× 'Tis highly probable that after the Romans became Maſters of Greece, the Grecian Drachma was leſſened 'till it became equal to the Roman Denarius; the reaſons for this proceeding are obvious enough.

Languith.

" ing the golden Didrachms coined after the Example of the old " *Darici*, by *Philip* and *Alexander*, as he mentions one of each " from *Snellius*, which weighed 134,5 of our Grains; ſo he ſpe- " cifies three of *Alexander's*, which he had ſeen, that wanted but " half a Grain of 134, or twice 67 Grains. Such too Dr. *Ber-* " *nard* met with; but more commonly with thoſe of 66 to the " *Drachma*. The generality of elder Coins that remain give it at 65 " Grains: Some *Arabian* Phyſicians at 64,28. And it is cer- " tain, as we ſhall ſee hereafter, that in the time of the firſt *Ro-* " *man* Emperors it came to be under 63 Grains: and not very " long afterwards to be under 55, and ſo to be $\frac{1}{8}$ of a *Roman* Ounce. " Thus did the money *Drachma* in proceſs of time decreaſe: as is " found by the Tryal of a Balance; and will appear by the teſti- " mony of old Authors, comparing them with the *Roman* Weight " and Money. But all the while we may ſuppoſe the ponderal " *Drachma* to have continued the ſame, juſt as it has happened to " us, as well as our neighbours, whoſe ponderal *Libra* remains as " it was, tho' the Nummary hath much decreaſed.

And page 55: " This gradual decreaſe, the ſucceeding Coins " of the ſeveral Ages ſhew us. And it may be convenient there- " fore, for the Reduction of their money to ours, to form diffe- " rent Tables for them: The one, for example, after *Solon's* Stan- " dard: which may ſerve, with ſome little allowance, 'till the days " of *Alexander*: Another more ſuited to the times that follow'd, " unto the Subjection of the *Greeks* to the *Romans*; and at the " rate of 65 Grains or thereabouts to the *Drachma*: and a third " of 62,57; which was equal, as we ſhall find, to the *Denarii* of " that weight under the firſt *Roman* Emperors; and had been equal, " as I ſhall ſuppoſe, for ſome conſiderable time before.

Of this we ſhall ſpeak more fully afterwards.

Mr. *Greaves* is of opinion that the alteration mention'd by *Pliny* in that forecited paſſage, *lib.* 33. *cap.* 3. of the *Denarius* being ordered to paſs for 16 inſtead of 10 *Aſſes*, continued from the firſt inſtitution of it in the ſecond *Punic* war, without any interruption

tion to *Juſtinian*'s time: but this opinion is contrary to the whole Claſſical Style; in which a *Denarius*, 4 *Nummi Seſtertii*, and 10 *Aſſes* are terms equivalent, and denote the ſame Sums: to change that way of reckoning, would be to introduce nothing but confuſion: it is not credible that the Writers expreſſed the valuation of the *Denarius* according to its firſt inſtitution, without regard to the preſent valuation.

He is ſurpriſed at the ſtrange and unadviſed proportion betwixt the Braſs and Silver Moneys of the firſt times, that X Pounds of Braſs ſhould be but anſwerable to the 84th part (for ſo much or near it was the *Denarius*) of a pound of Silver; or to ſpeak more clearly that one pound of Silver ſhould be equal in valuation to 840 pounds of Braſs.

I am of opinion that tho' *Pliny* gives you the true matter of fact, he aſſigns a falſe reaſon for it: [x] for he ſeems to attribute the cauſe of the diminution of the weight of the *Aſſes* to the neceſſities of the Commonwealth, whereas it was undoubtedly the change of the Balance of the two Metals of Braſs and Silver: and for that reaſon the Commonwealth gradually reduced the weight of their *Aſſes*, finding the former proportions too high.

Another method which Mr. *Greaves* takes to determine the weight of the *Denarius*, and the gradual diminution of it, is by the weight of ſeveral *Aurei*, it being probable that as the *Athenians* made their χρυσοῦς or *Aurei* double in weight to the ſilver *Drachma*, ſo in imitation of them the *Romans* made their *Aureus* double in weight to the *Denarius*: from whence it is concluded that the *Aureus Romanus* falling in its weight, the *Denarius* likewiſe of neceſſity muſt fall. In what manner the *Aureus* was firſt coined, and how afterwards it loſt of its primitive weight, *Pliny* informs us *lib.* 33. *cap.* 3. *Aureus nummus poſt annum* LXII *percuſſus eſt quam Argenteus, ita ut ſcrupulum valeret Seſtertiis vicenis, quod efficit in libras ratione Seſtertiorum, qui tunc erant, Seſtertios* IↃCCCC. *Poſt hæc placuit* XL. M *ſignari ex auri libris: paulatimque principes imminuere pondus, imminuiſſe vero ad* XLV. M.

This

x I take Pliny's reaſon to be a very good one, not that I reject the Doctors, for I believe both were concerned.

Langwith.

This paſſage is corrected by *Greaves* after the following manner, *Poſtea placuit* X. XL *ſignari ex auri libris, paulatimque Principes imminuere pondus, imminuiſſe vero ad* XLVIII.

It is to be obſerv'd that *Pliny*, who mentions the diminution of the weight of the *Aurei* ſo nicely as to ſpecify the exact proportions, ſaith nothing of the diminution of the weight of the *Denarius*, I therefore think it is not perfectly evident that the *Denarius* kept pace with it, although it is generally agreed that the *Denarius* fell from $\frac{1}{7}$ to $\frac{1}{8}$ of an Ounce; and the accurate Biſhop of *Bath* and *Wells* has made two different Tables for the Reduction of them to our Standard. But the *Denarius* of the Claſſical Authors, which is allow'd to be the 7th part of an Ounce, is made uſe of in the following computations of the *Roman* money.

The Subdiviſions of the *Denarius* [a] were the *Quinarius* or half *Denarius*, ſo called from its value of five *Aſſes*, [b] the half *Denarius* was likewiſe called *Victoriatus*.

[c] *Celſus* divided the *Denarius* into 6 parts, which he called *Unciæ*; *Uncia* being a general word, as we ſaid before, for the diviſion of any *Integer*. This was done in imitation of the *Greek* Phyſicians, who after the manner of their Country divided their *Drachma* into 6 *Oboli*.

[d] The Stamp of the *Denarius* was the image of the *Conſul* or Prince under whom it was coined, which is plain from thoſe now extant, and paſſages of Authors.X

The inſcription commonly expreſs'd the name of the Prince and the occaſion of the coining of it. The Reader may ſee as an example, in the quotations below, an Inſcription of a *Denarius* of *Antoninus Pius*.

The common mark of the *Denarius* was an X or ⧖ in imitation of which among the *Latin* Phyſicians it grew to an *. The *Greeks* uſed the word δηναριον in the neutral gendre.

Tully

[a] Varro lib. 4. de lingua lat. In argento nummi Denarii quod denos Æris valebant, Quinarii quod quinos. [b] Voluſius Metianus. [c] Coel. Celſus lib. 5 cap. 17. [d] Plin. lib. 6 cap. 20. Matth. 22. Marci 12. Lucæ 20. In una parte ANTONINUS PIUS, AUG. BRIT: in altera vero facie AUGUSTUS BRITANICUS, PONTIFEX MAXIMUS, TRIBUNICIÆ POTESTATIS DUODECIMUM, CONSUL TERTIUM.

X The quotation d is wrong, for there is nothing in Pliny lib. VI. cap. 20. relating to this. Nor indeed is it poſſible that Pliny ſhould ſay that the Stamp on the Denarius was the image of the Conſul, for it is contrary to the matter of fact. The Conſuls were ſo far from having their faces upon the Denarii that they had as much as their names thereon, at leaſt not till the Princes became Conſuls. Langwith

[e] *Tully* has the expreſſion *ad Denarium ſolvere*, which *Hoſtus* juſtly blames two Authors for miſinterpreting, one underſtanding it as if it were, *ad minimum ſolvere*, to pay to the laſt farthing, the other explaining it of Intereſt, whereas the true meaning is to pay in *Roman* money.

There is mention made of [f] *Bigati* and [g] *Quadrigati*, which were *Denarii* ſo called from the Stamps of *Bigæ* and *Quadrigæ* upon the Coins.

[h] *Cornelius Tacitus* mentions *Nummi Serrati*, perhaps from the figure of a *Saw* upon them? what they were is uncertain.

[i] There are likewiſe mentioned by Authors *Argentei*, and [k] *Argentei minuti*, and *Ærei Phillipei*. Thoſe were in the later times of the Empire and of uncertain value.

Of the ROMAN PONDO.

THE *Pondo Argenti* amongſt the *Romans* is a ſort of numeral expreſſion of Sums of Money, and is different from the common *Libra*, which conſiſted only of 84 *Denarii* or 96 *Drachms*: for *As*, *Æs*, *Pondo* and *Mina* amongſt ancient Authors generally paſs for the ſame. *Budæus* reckons this *Pondo* to conſiſt of 100 *Denarii*, and *George Agricola* of 96, ſuppoſing the *Denarius* and the *Drachma* to be equal; according to *Budæus*'s valuation, the *Pondo* amounts to the value of an *Attick Mina* or 3 *l.* 4 *s.* 7 *d.* According to *Agricola* to 3 *l.* 2 *s.* 0 *d.*

It is very probable that the *Romans* made uſe of this Decimal *Pondo*, or *Libra*, in imitation of the *Greek Mina*. For what *Livy* [m] expreſſeth by *Argenti Pondo bina & ſelibras*, *Plutarch* [n] renders 250 *Drachms*.

[o] *Galen*

[e] Cicero Orat. pro Quint. [f] Liv. lib. 6. Decad. 4. [g] Plin. lib. 33. cap. 3. [h] Corn. Tacit. German. Pecuniam probant veterem Serratos & Bigatos. [i] Spartianus in vita Probi. Lamprid. in Heliogabalo. [k] Spartianus in Aureliano. [l] Spart. in Probo. [m] Liv. lib. 2. Decad. 3. Convenerat inter Duces Romanum Pœnumque, ut quæ pars plus reciperet, quam daret, argento pondo bina & ſelibras in militem præſtaret. [n] Plutarch in Fabio Max. ἀπαρχὴν γὰρ αὐτοῖς, ἄνδρα μὲν ἀπὸ τῶν ἑξήκοντα, τῶν δὲ λειπομένων, οἱ μὲν πλείους, οἱ δ' ἕτεροι δύο μνᾶς ἀργυρίου διδόναι δραχμὰς ἑκατὸν πεντήκοντα καὶ διακοσίας.

[o] See Liparini Note 23 on Sacrobosco De Monte: Lorman: in confirmation of Lang in this correction. Lang's conjecture could not be known at the time Liparini was

× This is a strange perhaps, for I think no doubt can be made but that these Nummi Serrati were such as had their edges notched like a Saw. These are not uncommon, but the others were never seen by me, nor I believe by any body else. Languith.

[o] *Galen* in his Book *de Compoſitione Medicamentorum* tells us that ſome reckon'd 100 *Drachmæ* to the *Libra*. However it is certain that ſometimes *Libra* applied to Sums of money, denotes only the *Roman* Pound of 96 *Roman Drachms*. Here it muſt be conſidered that when in the Tables Silver is reckon'd at 5 Shillings *per* Ounce, it muſt be underſtood of Silver coin'd nearly according to the *Engliſh* Standard, which has 18 pennyweight of Alloy in the Pound *Troy*. Now if to a *Roman* Pound of pure Silver you add Alloy in the proportion of the *Engliſh* Coinage, it will make in value only 2 *l.* 19 *s.* 1 ½ *d.* But in the common acceptation of Authors the nummary *Pondo* is the ſame with *Mina*, and makes as we ſaid before 3 *l.* 4 *s.* 7 *d.* We are not perfectly ſure of the Standard of the *Roman* Coin; and weight alone is not ſufficient to determine the value to great preciſeneſs. It has been in ſome inſtances very courſe. [p] *Pliny* tells that *Livius Druſus* in his *Tribunate* mixt ⅛ of Braſs with it. *Pondo* is an indeclinable word, and when it is joined with numbers it ſignifies *Libra*; when it is join'd to other weights, it ſtands for the ſame things as ϛαθμῆ or ὁλκὴ in the *Greek*, ſignifying the ſame with *Pondus* or weight in general.

The *Romans* made uſe of the word *Talentum* or *Talent* in *Grecian* affairs.

[o] Galen. lib. 6. πότε μὲν γὰρ ἀντὶ τῆς λίτρας ρ' δραχμὰς γράφουσιν αὐτοὶ πότε δὲ ἀντὶ τῆς μνᾶς.

[p] Plin. lib. 3. cap. 3. Livius Druſus in Tribunatu plebis octavam partem Æris argenta miſcuit.

CHAP.

CHAP. IV.

Of the GRÆCIAN COINS.

THE *Greeks* made use of *Drachmæ* in reckoning Sums either in their own or *Roman* affairs: as the *Romans* did of *Nummi Sestertii*: of which there are many Examples in all Authors, especially in *Plutarch*.

[a] A *Drachm* is the hundredth part of a *Mina*.

[b] Δραχμὴ *quasi* δραγμή is a thing taken or apprehended by the hand, *à* δράττομαι, or as you would say a handful of six *Oboli*, which are equal in value to it.

It is a Weight as well as a Coin. The *Attick Drachm* is commonly reputed equal in value to the *Denarius*. And as amongst the *Romans* the *Denarius*, so amongst the *Greeks* the *Drachma* was coin'd both of Silver and Gold. But in reckoning Sums, where it is not otherwise specified, the Silver Coin is understood.

The value of which we have stated in the Tables and in all the following computations to be the same with the *Denarius*, *viz.* 7 ¼ *d.* We before observed that the learned Bishop *Hooper* makes the value of the *Attick Drachma* different in different ages, and the highest according to the weight of the Standard *Mina* of *Solon* 68, 4 Grains; but he owns that it fell afterwards to about the value of 62,57; which is much the same with that in the Tables. And upon this *Drachma*, and the equality of it to the *Roman Denarius*, almost all the computations in Classical Authors are founded, which we did not think worth the while to change,

 or

[a] Plutarch. in Solone ἕκατον γὰρ ἐποίησε δραχμῶν τὴν μνᾶν. & Jul. Poll. in Eupolide. ἡ δὲ ἀττικὴ μνᾶ ἔχει δραχμὰς ἑκατόν. [b] Eustath. in Iliad. I. Ὀβολὸν δὲ (λέγουσι) σιδήρου τι ἔλασμα, σχῆμα μὲν πῶς ἔχον ὀβελοῦ, οὐ μὴν καὶ εἰς πάντη ὀξὺ λῆγον. οὕτω δὲ ἁδρὸν ἦν τῇ παχύτητι, ὥστε ὀβολοὶ ἓξ τὴν δράκα ἐπλήρουν, καὶ τοῦτο ἐλέγετο δραχμὴ, ὀβολῶν τοιούτων ἑξὰς, ὅσων ἐπιδεδράχθαι δύναται χείρ.

or diverſify in a few inſtances that may be in earlier times. But if this Suppoſition be true, and the Reader of ancient Authors is reſolved to be nice, the value of the ſeveral *Drachmas*, according to the Biſhop's Suppoſition, From 70 Grains downwards is as follows.

Weight	Value	
gr.	*d.*	*q.*
70, - - - -	8	3
68,4 - - - -	8	2 $\frac{1}{5}$
65,5 - - - -	8	0 $\frac{3}{4}$
62,57 - - -	7	3 $\frac{2}{7}$

[c] The *Drachma* was divided into 18 κεράτια or *Siliquæ* as well as into 6 *Oboli.*

There were different *Drachms* in different Countries.

[d] The *Drachma Æginæa* is commonly reckon'd to be equal to 1 $\frac{2}{3}$ of an *Attick Drachm* or 10 *Attick Oboli.* [d] The *Athenians* called it παχεῖαν or thick. [e] It was the pay of a Horſeman even amongſt the *Athenians.* There is frequent mention made of it in *Hippocrates.*

[f] There is mention likewiſe made of the *Corinthian Drachm*, but it's value is uncertain: it is ſuppos'd by ſome Authors equal to the *Attick.*×

[g] The *Ægyptian Drachm* according to *Cleopatra* was equal to an *Obolus* or the 6th part of the *Attick Drachm.*

There were coin'd likewiſe the Parts and Multiples of a *Drachma*, the [h] *Semidrachma*, [h] *Didrachmum*, [i] *Tridrachmum*, and [k] *Tetradrachmum*, which was called the [l] Γλαυξ or Owl, likewiſe [m] *Pentadrachmum*, and [n] *Hexadrachmum.* In ſome Authors you find the word [o] *Pen-*

[c] Heſychius. [d] Julius Pol. lib. 9. ἀλλὰ μὴν τὴν μὲν αἰγιναῖαν δραχμὴν μείζω τῆς ἀττικῆς (δέκα γὰρ ὀβολοὺς ἀττικοὺς ἴσχυεν) ἣν οἱ ἀθηναῖοι παχεῖαν δραχμὴν ἐκάλουν, μίσει τῶν αἰγινητῶν, αἰγιναῖαν καλεῖν μὴ θέλοντες. [e] Thucyd. hiſt. 5. [f] Thucyd. Hiſt. 1. εἰ δέ τις τὸ πρωτίκα μὲν μὴ ἐθέλοι ξυμπλεῖν, μετέχειν δὲ βούλεται τῆς ἀποικίας, πεντήκοντα δραχμὰς καταθέντα κορινθίας μένειν. [g] Cleopatra. δραχμὴ δὲ καὶ ἄλλη ὁμώνυμος καλεῖται αἰγυπτιακὴ, ἥτις ἕκτον μέρος ὄστι τῆς ἀττικῆς δραχμῆς, ἄγουσα ὀβολὸν ἀ. [h] Jul. Pollux. [i] Ariſtoph. in Pace. [k] Cicero Epiſt. lib. 12. [l] Interpres Ariſtoph. ἐκλήθη δὲ τὸ νόμισμα τὸ τετράδραχμον τότε ἡ γλαῦξ. [m] Numiſma Cyrenæorum apud Pollucem. [n] Heſychius, & Ariſtoteles lib. 2. Oeconomic.

× It is a pity he does not quote his Authors.
Langwith.

[o] *Pentecontadrachmum*, or 50 *Drachms*, which if it were a Silver Coin, muſt have been very large.

[p] When the word ἀργυρίου is join'd with a number, it is to be underſtood of *Drachms*.

[q] There is mention made of Βοῦς, *Bos*, the *Ox*, ſo called from the Stamp; [r] it is reputed equal to the *Didrachmum*, [s] and was coin'd both of Gold and Silver. This Coin was perhaps one of the ancienteſt of all in *Greece*; it is mention'd by *Julius Pollux* and ſeveral other Authors, who ſay it was known to *Homer*, and he is thought to allude to it, when he ſpeaks of *Glaucus* exchanging his Golden Armour, that were worth 100 Oxen, for the Braſs one of *Diomedes*: from whence it would follow that this Armour muſt not have been entirely of Gold, becauſe a βοῦς being only a *Didrachmum*, as *Pollux* affirms, and is likewiſe plain from *Ariſtophanes*; the Armour according to this way of reckoning was worth a very ſmall Sum.

Ὀβολὸς, *Obolus*, ſo called from the form of a Spit, becauſe it was coined in an oblong ſhape.

There are mentioned the *Semioboli*, the *Duoboli*, the *Trioboli* and *Tetroboli*.

[t] Χαλκὸς a ſmall Braſs Coin, the 6th part of an *Obolus*, *Dichalcus* the third part of an *Obolus*.

[u] There is even mention'd the Λεπτὸν, the ſeventh part of an *Obolus*.

[x] The Στατὴρ, ſo called from weighing. *Stater* as a weight ſignifies a pound. They were coin'd both of Silver and Gold, but moſt commonly of the latter. They were of different Weights and Names, according to the different Princes and Countries who coin'd them, as

Philippick, *Alexandrian Daricks*, ſome were *Didrachmi*, others *Tetradrachmi*.

o Apud Platonem & Jul. Pollucem.

p Athenæus lib. 4. q τὸ δὲ παλαιὸν τοῦτο ἦν ἀθηναίοις νόμισμα, καὶ ἐκαλεῖτο βοῦς, ὅτι βοῦν εἶχεν ἐγκεκομμένον.

r Pollux lib. 9. καὶ ἐν τῇ παρὰ δυλίῳ θεωρίᾳ τὸν κήρυκα κηρύττειν φασὶν, ὁπότε δωρεάν τινι διδοῖτο, ὅτι δοθήσοιτο αὐτῷ τοσοῦτοι βόες, ἢ δίδοται καθ' ἕκαστον τῶν δύο δραχμὰς ἀττικάς.

s Scholiaſtes Homeri ἑκατὸν βοῶν τιμῆς ἄξιος, ἢ ἑκατὸν χρυσῶν νομισμάτων.

t Suidas ὀβολὸς δὲ παρ' ἀθηναίοις ἓξ δὲ χαλκοῦν.

u Suidas χαλκοῦς λεπτῶν ζ.

x Julius Pollux & Suidas.

The following Coins are likewise mentioned in Authors.

[y] Κόρη, the Maid, so called from the figure of *Pallas*, equal in value to a *Tetradrachm*.

[y] Χελώνη, the Shell, so called from the Type, of uncertain value.

[z] Σύμβολον, *Symbolum*, a small Coin of uncertain value.

[a] Λεπτίς, so called from its smallness, it was equal to $1\frac{1}{2}$ of the *Ceratium*, which was $\frac{1}{3}$ of the *Obolus*.

[b] Ευθεῖα, a *Semidrachma*, or *Triobolus*.

[b] Κίδαβος, $\frac{1}{8}$ of an *Eutheia*.

[b] Κραπάταλλος, *Crapatallus*, equal to 8 *Eutheiæ*, consequently equal to a *Tetradrachm*.

[c] Τροιζήνιον, *Trœzenium*, with a *Pallas* on one side and a *Trident* on the reverse; it was of uncertain value.

[d] Κόλλυβος, supposed equal to the *Roman Sestertius*.

[e] Κύλλυνον, a small Coin of uncertain value.

[f] Κολύμβων, *Colymbum*, of uncertain value.

[g] Κέρμα signifying a small Coin fit to exchange a greater, from whence κερματίζειν to exchange Money.

[h] Φόλλις a sort of an *Obolus*.

[i] Δημαρέτιον, so called from *Demareta* the wife of *Gelon*.

[k] Λίτρα, which signifies *Libra* a pound weight, is likewise a name for a small Coin equal to an *Æginæan Obolus*.

[l] There is likewise mention made of Οὐγγία, or the *Uncia*, which the *Sicilians* borrowed from the *Roman Libra*.

[m] Κοδράντης, *quadrans*, or the fourth part of an *Obolus*.

Γρὺ, a small piece of Coin used proverbially.

[o] Ἀσσάριον, used for the *As*, and sometimes for the *Obolus*.

[p] Πέλανορ, equal to 4 *Chalei*.

Ὀδολκαὶ

[y] Jul. Pollux lib. 9. [z] Pol. ibid. Σύμβολον βραχὺ νομισμάτιον. ἡμίτομόν τι νομίσματος. [a] L. Cælius lib. 10. cap. 2. [b] Jul. Pollux lib. 9. [c] Pausanias in Corinthiacis. [d] Hesychius & Pollux lib. 3, & 7. [e] Pollux lib. 9. εἴη δ' ἂν καὶ κόλλυνον, λεπτόν τι νομισμάτιον. [f] Suidas Κολύμβων εἶδος νομίσματος. [g] Suidas interpretatur κέρματα, τὰ λεπτότατα, hoc est, minutissimos nummos. [h] Hesychius in voce κοδράντης sic ait: κοδράντης τὸ πᾶν, ἢ τὸ τέταρτον τῆς φώλεως. [i] Pollux lib. 9. δημαρέτιον νόμισμα, ἡ δεμαρέτη γέλωνος οὖσα γυνὴ, κατὰ τὴν πρὸς λιβύας πόλεμον ἀποροῦντος αὐτοῦ, τὴν κόσμον αἰτησαμένη παρὰ τῶν γυναικῶν συγχωρεύσασα νόμισμα ἔκοψατο. [k] Pollux lib. 9. καὶ μὲν ἐν ἀκραγαντίνων πολιτείᾳ, φησὶν ἀριστοτέλης, ζημιοῦσθαί τινα τριάκοντα λίτραις δύνασθαι τὴν λίτραν ὀβολὸν αἰγιναῖον. [l] Pollux lib. 9. [m] Hesychius. [o] Suidas ἀσσάρια ὀβολοί. [p] Hesychius. πέλανορ τὸ τετράχαλκον, λάκονες.

[q] Ὀβολαὶ, *Cretian Oboli.*

[r] Νομία from *Nummus*, interpreted likewiſe *Oboli.*

[s] Μέλισσα, *Meliſſa*, an *Obolus.*

The vaſt number of ſmall Governments in *Greece* occaſioned a great variety of names of Coins.

The Mina Attica *of Silver.*

MINA, *Mina Attica*, contain'd 100 *Drachmæ* or *Denarii*, and the Tables proceed on that principle in reckoning Sums of Money, where a *Mina* is made 3*l.* 4*s.* 7*d.*

Thus *Dionyſius Halicarnaſſeus* in reckoning up the *Roman Cenſus* makes the ſeveral Claſſes ſtand thus:

Fifth, *Minæ* XII. *cum ſemiſſe*, or *Æris* XII. *millia cum ſemiſſe* ×
Fourth, *Minæ* XXV. - - - - - *Æris* XXV. *millia*
Third, *Minæ* L. - - - - - - - *Æris* L. *millia*
Second, *Minæ* LXXV. - - - - *Æris* LXXV. *millia*
Firſt, *Minæ* C. - - - - - - - - *Æris* C *Millia.*

In the fifth *Cenſus* he differs from *Livy*, who makes it XI *millia Æris*, ◇◇ which is ſome miſtake or falſe reading; for in the reſt they are exactly the ſame, making the *Mina* equal to 100 *Denarii* or 1000 *Aſſes*: for it was equal to ſo much of *Roman* money, as appears by comparing two paſſages, one of [u] *Appianus* and another of [x] *Suetonius*. For, ſpeaking of a *Congiarium* given by *Cæſar*, the former calls it a *Mina*, and the other calls it *quadringenos Seſtertios*, which is equal to 1000 *Aſſes*, or 100 *Denarii.*

[y] The old *Attick Mina* at firſt contain'd 75 *Drachmæ*, but afterwards *Solon* augmented it to 100; as *Plutarch* relates. And beſides him

q Heſychius ὀβολαὶ, ὀβολοὶ κρῆτες. r Idem. s Idem. μέλισσα, ὀβολὸς, ὃς ἔστι μέρος δραχμῆς. t Plutarch in Solone ἑκατὸν δὲ ἐποίησε δραχμῶν τὴν μνᾶν. u Appianus lib. 2. Bell. Civil. x Sueton. in Cæſare. y Plutarch. in Solone. ἑκατὸν δὲ ἐποίησε δραχμῶν τὴν μνᾶν. πρότερον ἐξ ἑβδομήκοντα δραχμῶν ἦσαν. *But* Agricola *inſtead of* τεττῶν *reads* πίσσε.

× See Smith p. 181. Langwith.
◇◇ See Smith p. 182. Langwith

him [z] *Pollux*, *Suidas* and [a] *Hippocrates* affirm that the *Mina Solonis* was equal to 100 *Drachmæ*.

[b] The *Mina Attica* was the 60th part of the lesser *Attick Talent*.

Of some Asiatick *and* Barbarian Coins.

Κιςοφόρος, *Cistophorus*, was a *Rhodian* Coin, so called from the Stamp of a *Cista* upon it. *Festus Pompeius* saith that 7500 of them was equal to 400 *Denarii*; consequently, a *Denarius* being 7 ¾ *d.* a *Cistophorus* must be about 4 ½ *d.*

This Coin is mention'd both by [c] *Livy* and [d] *Cicero*.

Ιαλύσιον, so called from *Ialysium*, a City in *Rhodes*. This Coin is mentioned by *Hesychius*.

[e] Τενέδιον νόμισμα, so called from the Island *Tenedos*. On one side of it there was an *Ax*, and on the reverse two heads on one Neck. For there was a certain King of *Tenedos* who made a Law that Adulterers should be beheaded, both the man and woman. It happening afterwards that his own Son was found to be guilty of Adultery, the Law was put in execution against him; and after he was beheaded, the Ax of *Tenedos* was used as a proverb to denote cruelty. And in memory of the death of this person, the foremention'd Stamp was put on the Coin.

[f] Ομηρος, a Coin of the *Smyrnæans*, so called from *Homer* whom they claim to be their Countryman.

Τύριον νόμισμα, of the value of a *Tetradrachm*, is mentioned by *Suidas* and [g] *Josephus*.

Σίγλος is mentioned by *Hesychius*, and reckon'd by him, in one place worth 8 *Attick Oboli*, in another, worth 2 *Drachms*; and by

[z] Pollux lib. 9. [a] Hippocrates lib. 5. cap. 12. De composit. Medicam. [b] Suidas in voce ὀβολὸς. ἢ δὲ μνᾶ ἑξηκοστὸν ἐστὶ τοῦ ταλαντοῦ. [c] Livius lib. 7. Decad. 4. [d] Cicero lib. 2. Epist. 1. ad Atticum. [e] Stephanus de Urbibus. ἢ μᾶλλον, ὥς φησιν ἀριστοτέλης ἐν τῇ τενεδίων πολιτείᾳ, ὅτι βασιλεύς τις ἐν τενέδῳ νόμον ἔθηκε, τὴν καταλαμβάνοντα μοιχὸς ἀναιρεῖν πελέκει ἀμφοτέρους. ἐπειδὴ δὲ συνέβη τὴν υἱὸν αὐτοῦ ληφθῆναι μοιχὸν, ἐκύρωσε καὶ περὶ ἰδίου παιδὸς τηρηθῆναι τὸν νόμον, καὶ ἀναιρεθέντος εἰς παροιμίαν ἐλθεῖν τὸ πρᾶγμα ἐπὶ τῶν ὠμῶς πραττομένων. διὰ τοῦτό φησιν, ἐπὶ τοῦ νομίσματος τῶν τενεδίων κεχαράχθαι ἐν μὲν τῷ ἑτέρῳ μέρει πέλεκυν, ἐπὶ δὲ τοῦ ἑτέρου δύο κεφαλὰς εἰς ὑπόμνησιν τοῦ περὶ τὸν παῖδα παθήματος. [f] Strabo lib. 14. [g] Lib. 14. cap. 2. De Bello Judaic.

by *Xenophon* it is said to be worth 7 ½ *Attick Oboli.* It was a *Persian Coin.* There were likewise *Ægyptian* σίγλοι of 16 *Attick Drachms* value: which Coins seem to have had their name from the *Shekel* of the *Jews.*

Δανικὸν νόμισμα or δανικὴ, a *Persian* Money mentioned by *Pollux.*

[h] Δανακὴ, a piece of money given to the dead to pay their freight over *Acheron.*

[i] Δανάη, a money of the *Barbarians* worth somewhat more than an *Obolus.* This was said also to be given to the dead: *Lucian* in his Dialogues says that in his Time an *Obolus* was the common fare for *Charon*, but in *Aristophanes* he asks two *Oboli.*

Ὕλλος is mention'd by *Pollux* as a piece of money.

Suidas speaks of a *Cyrenæan* Coin, which had on one side *Hammon*, and on the other the *Silphium* a sort of *Herb.* From which the *Succus Cyreniacus* was expressed.

[k] Χία is mentioned by *Thucydides* either as a Coin or Sum of Money, supposed to be so called from *Chios.*

Πτολεμάϊκον, so called from *Ptolemy.*

Βερενίκιον νόμισμα, so called from Queen *Berenice* that coin'd it.

These two Coins are mention'd by *Pollux.*

Αρυανδικὸν νόμισμα, mentioned by *Hesychius*, so called from *Aryandes*, who was made Governour of *Ægypt* by *Cambyses* the Son of *Cyrus.*

Κορσίπιον, likewise called *Cersæus*, an *Ægyptian* Coin spoken of by *Hesychius.*

Ξύνιστρον νόμισμα mentioned by *Hesychius.*

Τροπαὶ a certain Coin mention'd by the same.

Φιλιστίδιον νόμισμα likewise spoken of by him.

Κέρσα is said by *Hesychius* to be an *Asiatick* Coin.

Δίκρανον

h Suidas. τοῦτο νομίσματός ἐστιν ὄνομα, ὃ τοῖς νεκροῖς ἐδίδοσαν, παλαὶ συγκηδεύοντες, ὡς ἀχερευσίας ἐπίβαθρον. i Δανάη νομισμάτιόν τι βαρβαρικὸν, δυνάμενον πλέον ὀβολοῦ ὀλίγῳ τινι.

k Thucyd. lib. 8. ὁ δὲ μίνδαρος ἐν τούτῳ καὶ αἱ ἐκ τῆς χίου τῶν πελοποννησίων νῆες ἐπισιτισάμεναι δυσὶν ἡμέραις, καὶ λαβόντες παρὰ τῶν χίων τρεῖς τεσσαρακοστὰς ἕκαστος σχιὰς, τῇ τρίτῃ διὰ ταχέων ἀπαίρουσιν ἐκ τῆς χίου πελάγιαι.

Δίκραννον & δίκρατον νόμισμα, as the name imports, had two heads like the *Roman* Coin with a *Janus bifrons*, and that of *Tenedos* formerly mention'd.

Ἐπίχυτον, a Coin ſaid by *Heſychius* to be made of Silver or Lead.

Χαλκοῖ, an *Ægyptian* Coin of the weight of a *Drachma*, both Silver and Gold.

Θάσιος, a Coin weighing four *Drachmæ*.

Κένσος was either a Coin, or a certain Sum of Money.

Ἥμαθον, a *Cyzicenian* Coin mention'd by *Heſychius*.

Of the TALENT.

ΤΑλαντον, or *Talentum*, has a great many Significations. In *Homer* it commonly ſignifies a Balance: and therefore the Grammarians derive it from τλῆναι, ἀπὸ τῦ τλῆναι τὸ βάρος, becauſe it ſupports a weight: from hence comes ταλαντέω, ταλαντάω, & ταλαντεύω, which ſignify to hang or weigh.

The *Romans* borrowed the word *Talentum* from the *Greeks*, but they ſeldom uſed it, except when they ſpoke of *Græcian* or *Aſiatick* affairs; and when they had occaſion to tranſlate *Greek* Authors. *Terence* and *Plautus* who took their fables from thoſe Writers, uſe it commonly.

Τάλαντον (ſaith *Pollux lib.* 9.) μέγιστόν ἐστι χρυσίου καὶ ἀργυρίου μέτρος. And *Epiphanius lib.* 1. defines it ſo: τάλαντόν ἐστι, τὸ ὑπερβάλλον πᾶν σταθμώμενον μέτρον. By both which is meant that a *Talent* was the biggeſt of all weights. μέτρον with the *Greeks* ſignified in general the meaſure of things by the bulk, whether dry or liquid, and alſo the meaſure of weights and diſtances.

A *Talent* was twofold, ſignifying either ſo much weight or a ſum of money: the value of it differ'd according to the different Ages and Countries in which it was uſed.

Every

Every *Talent* conſiſts of 60 *Minæ*, and every *Mina* of 100 *Drachmæ*, but the *Talents* differ in weight according to the different *Minæ* and *Drachmæ* of which they were compos'd: there was an ancient *Attick Talent* ſaid to conſiſt of 80 *Minæ*, and Authors diſtinguiſh that from the *Talent* of 60 *Minæ*. This is what [a] *Livy* means, when he ſpeaks of *Antiochus*'s Tribute of 12000 *Talents* to be paid in 12 years in equal Sums, every *Talent* to be no leſs than 80 *Roman* Pounds; this great *Talent* is likewiſe gather'd from *Plautus* in his *Moſtellaria*, when *Tranio* ſaith there were four times 40 *Minæ* owing, *Simo* anſwers, then we muſt have as many *Talents* as you and I, that is two. But all this may mean that the old *Attick Talent* was then fallen in value. A *Talent* of 80 *Roman Libræ* would make the *Mina* equal to 1 ⅓ of the *Libra*: which if it was the numerary *Pondo*, would make the *Talent* of 80 *Attick Minæ*; if it is the Ponderal *Libra*, then it will make the *Mina* of 7008 Grains, about our *Averdupois* Pound.

The leſſer *Attick Talent* contain'd 60 *Minæ Atticæ*. *Suidas* ſaith, τάλαντον μνῶν ἐστιν ἑξήκοντα. And *Pollux lib.* 9. τάλαντον τῷ ἀργυρίῳ ἠδύνατο ἑξήκοντα μνᾶς ἀττικὰς. *Rhemnius* has the following verſes.

Cecropium ſupereſt poſt hæc docuiſſe talentum:
Sexaginta Minas, ſeu vis ſex millia Drachmas.
Quod ſummum doctis perhibetur pondus Athenis.

Talentum Euboicum, [X] ſo called from *Eubœa* an Iſland near the coaſt of *Attica*, is mention'd by [b] *Livy*. Some think it to be the ſame with the *Attick Talent*, becauſe both thoſe Countries uſed the ſame weights. For the *Mina Euboica* was *centenaria*, or conſiſted of 100 *Drachmæ Atticæ*, as well as the *Attick Mina*. [c] *Herodotus* ſaith the *Babylonian Talent* was equal to 70 *Minæ Euboicæ*, and [d] *Pollux* affirmeth that it was equal to 7000 *Drachmæ Atticæ*; whence it follows

F

[a] Livius lib. 38. Argenti probi duodecim millia Attica Talenta dato intra duodecim annos penſionibus æquis. Talentum ne minus pondo octoginta Romanis ponderibus pendat.
[b] Liv. lib. 8. Decad. 4. [c] Herodot. lib. 3.
[d] Pollux lib. 9.

X See Smith p. 103. 184. Lazarus.

lows that 70 *Minæ Euboicæ* were equal to 7000 *Drachmæ Atticæ*, and conſequently one *Mina Euboica* equal to 100 *Drachmæ Atticæ*, which is exactly the number of *Drachmæ* in the *Attick Mina*.

It was by the *Eubœan Talent*, that *Darius* King of *Perſia* order'd the Gold in his Dominions to be paid him.

Talentum Æginæum, ſo called from the Iſland *Ægina* on the coaſt of *Greece*, contain'd 6000 *Æginæan Drachmæ*, which according to *Pollux* make 10000 *Attick Drachmæ*. [e] *A. Gellius* takes a *Talent* or 10000 *Drachmæ* for the ſame, and makes it 10000 *Denarii* in *Roman* money, and in *Engliſh* money

[f] *Talentum Rhodium*, according to a paſſage in *Feſtus Pompeius*, is much leſs than it is made in the Tables, being only worth 4000 *Denarii*; but there is a great diſpute about this paſſage, and it is ſuppos'd to be corrupted: for it is contradicted by another of the ſame Author, where he ſaith that the *Rhodian Talent* is equal to 4000 *Ciſtophori* and 500 *Denarii*.

[g] *Talentum Babylonicum*, according to *Herodotus*, is equal to 70 *Euboick* or *Attick Minæ*. *Pollux* affirms the ſame thing, and ſo doth *Ælian*.

[h] The *Syrian Talent* is equal to 15 *Attick Minæ*, or 1500 *Attick Drachms*.

[i] The *Ægyptian Talent*, as by the Table, conſiſted of 80 *Attick Minæ*. *Darius* the Son of *Hyſtaſpes* the Monarch of *Perſia*, ordered his Silver to be paid in *Babylonian Talents*, and his Gold in *Euboick*.

There is ſome diverſity of opinions in Authors about fixing the value of thoſe *Talents*: the Tables are made on the beſt Information I could get.

There is another Talent much older and much leſs than any of the above-mentioned, which we may call the *Homerical Talent* of Gold, ſuppos'd to be equal to 3 *Attick Aurei*. *Pollux* ſpeaks of ſuch a *Talent*. *Euſtathius* upon *Homer* reckons it worth 24 *Drachmæ*:

[e] In hiſt. Demoſthenis & Laidis. [f] Feſtus Pomp. lib. 18. [g] Herodot. lib. 3. [h] Pollux lib. 9. [i] Plin. lib. 33. cap. 3.

Drachmæ: perhaps it may be of uncertain value, but that it was an inconſiderable Sum, is conjectured from the paſſage of *Homer*, where deſcribing the prizes at the funeral of *Patroclus*, he puts them in the following order. Firſt, The captive woman and a *Tripod*; Second, a Mare big with Foal; Third, a Kettle; Fourth, two *Talents* of Gold; Fifth, a Braſs Vial. Where the two *Talents* of Gold are propos'd as the moſt inconſiderable prize but one. Several Authors write, that amongſt the old *Greeks* a *Talent* of Gold was very ſmall; and the conjecture of the learned Biſhop of *Bath* and *Wells* ſeems to be well founded, "that this *Talent* of "Gold, tho' not equinumerant (Ἰσάριθμον the Phraſe is) nor yet "equiponderant (Ἰσοσάσιον) as to any other; yet was equivalent "(Ἰσοδύναμον) to ſome correſpondent *Talent* in Braſs, whatſoever "it was, whoſe under parts kept the common proportion between "themſelves; a Talent we may ſuppoſe of the *Phœnicians*, the "great Merchants remembred by *Homer*. For Example, if we "take the value of Gold to Silver to have anciently been, as "ten to one; the rate it bore for a long time in *Greece*. And "if we ſuppoſe the value of Silver to the Braſs of the *Cyprians*, "or *Copper*, to have been with their neighbours the *Phœnicians*, "as one to a hundred (and for a long time it has ſince generally "went not much above that value:) we then have ſix *Attick* (or "*Tyrian*) *Drachma's* weight of Gold equal in value to ſix thouſand "*Drachma's* weight of Braſs.

According to this ancient *Talent* ſome reckon the Treaſure of King *David*, particularly that mention'd 1 *Chronicles* xxii. *Now behold in my Trouble I have prepared for the Houſe of the Lord a hundred thouſand Talents of Gold, and a thouſand thouſand Talents of Silver*: which according to the common reckoning would amount in Gold *Talents* to the value of 547,500,000 *l.* and the Silver to above 342,000,000 *l.*

Or reckoning according to the decuple proportion of Gold to Silver, the two Sums would be equal.

Josephus lib. 7. Antiquit. mentioning the same passage, calls both the Gold and Silver but 100,000 *Talents*, by which it seems he spoke according to some more modern calculation.

David reigned in *Judæa* after the Siege of *Troy*, as may be gather'd from the *Chronicles* of *Eusebius*; so that it is no ways improbable but *Homer* and he might use the same numeral *Talent* of Gold.

[k] Both *Pollux* and *Suidas* inform us of a particular way of reckoning by *Talents* in the more early times; *viz. Tertium Semitalentum* signified 2 ½ *Talents*, *quintum semitalentum* signified 4 ½ *Talents*, *septimum semitalentum* signified 6 ½ *Talents*, and in short whatever number was join'd to *Semitalentum* signified the immediate foregoing number of *Talents*, and half a *Talent* more.

It's plain that the *Latins* admitted this way of reckoning sometimes, from the word *Sestertius*, which signifies *tertius semis*, or 2 ½ *Asses*; and in the Law of the XII *Tables pes tertius* is put for 2 feet and ½.

CHAP. V.

Of the Jewish *Coins, in which their Weights are likewise consider'd.*

AS the *Romans* reckon'd by *Sestertii* and *Denarii*, the *Greeks* by *Drachms*, so the *Hebrews* reckon'd their Sums of Money by *Shekels*; which is a word (as those skill'd in the *Hebrew* say) which comes from a verb *Sakal*, which signifies to weigh: it was called by the *Greeks* σίκλος and σίγλος. The *Persians* and *Ægyptians*

k Pollux ἀρχαία δὲ ἡ χρῆσις, καὶ ἡ τοῦ πέμπτον ἡμιτάλαντον, καὶ ἕβδομον ἡμιτάλαντον, ἢ τέσσαρα ἥμισυ τάλαντα, ἢ δύο ἥμισυ, ἢ ἓξ ἥμισυ καὶ ὅλως ὁπόσου, φήσι τις, τὸ ἡμιτάλαντον, τὴν πρὸ αὐτοῦ ἀριθμὸν ὁλόκληρον εἶναι δεῖ, ἐὰν μὲν ἕβδομον, τὸ ἕκτον, ἢν δὲ τρίτον, τὰ δύο. σὺν δὲ τούτῳ τὸ ἥμισυ τάλαντον τρία ἡμιτάλαντα λέγειν, ὡς καὶ τρία ἡμιμναῖα τὴν μίαν ἡμίσειαν μνᾶν.

Ægyptians made use of the same word, to express a certain Coin. The following Tables are founded upon the *Rabbinical* Supposition, and that of Dr. *Cumberland* late Bishop of *Peterborough*, *viz.* that the weight of a *Shekel* is half a *Roman* or half an Ounce *Averdupois*, which according to Dr. *Cumberland* is 219 Grains, *Troy* weight, according to the supposition in the Tables 218 $\frac{4}{5}$, which perhaps may be a mistake; but as I said before, the proportion of the *Averdupois* Ounce to the *Troy* Ounce, that was given me as a true one, was 51 to 56. The difference is very inconsiderable, being only $\frac{3}{5}$ of a Grain in half an Ounce.

This value of the *Shekel* has been collected from the experiment of weighing several remaining *Shekels*. From the testimony of the later Ancients the Bishop of *Peterborough* quotes that of St. *Jerome* on the 4th *Chapter* of *Ezekiel*, who affirms the *Shekel* to contain four *Drachms* of the *Latin* Ounce: and is agreeable to the concurrent testimonies of all the *Rabbins*. According to this weight and the value of Silver, suppos'd to be in the Tables at 5 Shillings the Ounce, the *Shekel* must be in *English* Money 2 *s.* 3 $\frac{9}{28}$ *d.* for which fraction $\frac{9}{28}$ of a Penny, I have put $\frac{3}{8}$ for some conveniency in computation, and approaching nearer to the real value of our Silver: The difference being less than $\frac{1}{5}$ of a Farthing.

But because I will conceal nothing, that may tend to the information of my Reader, I must acquaint him that the learned Bishop of *Bath* and *Wells* is of opinion, "that the *Talmudical* "*Jews* have deliver'd to us a very different value of the old *He-* "*brew* Coins, from what some great Men of their own nation, "*Philo* and *Josephus*, had formerly given us; and that for exam- "ple, when these had rated a *Shekel* to us at near 272 of our "Grains, and a quarter *Shekel*, at 68, those have lower'd the *She-* "*kel* to 219, and brought down the *Zuza* to an equality with "the *Roman Drachma*:" and what the Bishop saith is indeed true. [a] For *Josephus* reckons the half *Shekel* or what they call the *Siclus profanus*, as a *Didrachm*, and puts for 5000 such *Shekels* μυρίας δραχμάς:

[a] Joseph. lib. 3. ὁ δὲ σίκλος νόμισμα ἑβραίων ὢν ἀττικᾶς δέχεται δραχμὰς τέσσαρας. *this is said of the* Siclus sacer.

δραχμάς: And the ſacred *Shekel* he reckons as a *Tetradrachm*; [b] and ſo it is in *Heſychius*. *Philo* likewiſe, who lived in the time of *Claudius*, poſitively affirms that the *Shekel* of the *Hebrews* was equal to the *Tetradrachm* of the *Athenians*. And this value of the *Shekel* is the ſame which is given it by the LXX *Interpreters*. They render a *Shekel* of 20 *Gerahs* by *Didrachmum* the *Alexandrian* Coin, which was equal to the *Attick Tetradrachm*.

The Biſhop ſuppoſes that St. *Jerome* and *Epiphanius*, who are quoted againſt this opinion, when they mention the proportion of the *Jewiſh* weights to the *Libra* and Ounce, mean an *Attick* Ounce and an *Attick* Pound greater than the *Roman*. The Reader will eaſily perceive that according to this way of reckoning, the *Shekel* muſt have weighed 4 x 67 or 4 x 68,4 Grains: which as a Coin would make, 2 *s*. 9 ½ *d*, or 2 *s*. 10 ½ *d*.

The Type and Inſcription of the *Shekel* was in *Hebrew* letters, on one Side *SEKEL BISRAEL*, (that is, a *Shekel* in *Iſrael*) with an Altar or Chalice ſmoaking Incenſe: on the reverſe *HE-KADOSCH IERUSALAIM* (that is, holy *Jeruſalem*) with *Aaron*'s Rod budding.

[c] The half *Shekel* was called *Beka*, from the verb *Baka*, which ſignifies divided in two parts. It was the ſame with the *Didrachmum*, or what they call the *Siclus profanus*.

The Pole-Tax of the *Jews* under the Government of the *Romans* was this *Didrachm*.

The *Zuza* was the fourth part of a *Shekel*, for ſo the fourth part of a *Shekel* 1 *Samuel* ix. is tranſlated by the *Chaldee* Paraphraiſt. This is not mention'd in the Tables, becauſe not ſo common.

[d] *Gerah* was the twentieth part of a *Shekel*, and is underſtood to be the ſame with *Agorah* mention'd 1 *Samuel* ii. 36. The LXX interpret *Gerah* an *Obolus*, which is the ſmall Coin that comes the neareſt to it; but a *Gerah* being $\frac{1}{20}$ of a *Tetradrachm*, muſt have

[b] Heſychius σίκλος τετράδραχμον ἀττικὸν. [c] Gen. 24. & Exod. 38. [d] Exodus 30, & 13. Levit. 27. Numb 3. 18. Ezekiel 45.

have been $\frac{1}{5}$ of a *Drachm*, of which the *Obolus* is the $\frac{1}{6}$. Tho' Biſhop *Cumberland* ſaith that there are *Attick Oboli* ſtill remaining of 1095 Grains mention'd by Mr. *Greaves*, which prove that the weight of the *Shekel* hath been rightly ſtated 219 Grains.

The greater ſums of Money and Weights among the *Hebrews* were a *Talent* and *Maneh*. *A Talent* was 3000 *Shekels*, as appears by *Exod.* xxxviii. 25, 26. which runs thus. *And the Silver of them that were numbred of the congregation, was an hundred Talents, and a thouſand ſeven hundred and threeſcore and fifteen Shekels, after the Shekel of the Sanctuary. A Bekah for every man, that is half a Shekel, after the Shekel of the Sanctuary, for every one that went to be numbred from twenty years old and upward, for ſix hundred thouſand, and three thouſand and five hundred and fifty men.* So 603550 half *Shekels* or 301775 *Shekels* made 100 *Talents* and 1775 *Shekels* over: which ſubſtracted from the former ſum leaves 300000 equal to 100 *Talents*, or 3000 *Shekels* equal to one Talent.

In the computation of the *Maneh*, Dr. *Cumberland* commits a miſtake: for the *Maneh* (ſaith he) "being ſet for a mere weight "without reſpect to Coinage, contain'd juſt 100 *Shekels*, this "ſeems clear by the comparing of 1 *Kings* vii. 17. (where it is "ſaid that in each of *Solomon*'s Shields there were three *Manehs*, "or, as we tranſlate it, pounds of Gold) with 2 *Chron.* ix. 16. "where our Tranſlation affirms that 3000 *Shekels* of Gold went "to one of thoſe Shields. And indeed tho' the word *Shekel* be "not in the Original expreſt, yet it muſt be underſtood; becauſe "*Ezekiel* aſſures us, *Ezek.* xlv. 12. that by the *Shekel* the *Maneh* "was adjuſted. And *Pollux lib. 9 cap. 6.* affirms, that when we "ſay a Golden One, we underſtand a στατὴρ; as when we ſay a "Silver piece, we mean a *Shekel*." According to this rate of the *Maneh*, a *Talent* would contain 5000 *Shekels*, whereas it is acknowledged by all to contain only 3000. It is plain that the nummary *Maneh* conſiſted only of 60 *Shekels*, for *Ezekiel Chap.* xlv. 12. reckons 20, 25, and 15 *Shekels* to the *Maneh*, which make

make the number 60. The ponderal *Maneh* conſiſted only of 50 *Shekels*. The *Talent* was the ſame in both, conſiſting of 3000 *Shekels*.

There is another paſſage concerning the weight of *Abſalom's* hair, which is ſaid to weigh 200 *Shekels*, 2 *Sam.* xiv. 26. This *Joſephus* calls 5 *Minæ*, which would make the *Mina* to conſiſt of 40 *Shekels*, and hath made ſome imagine there were *Sicli Tridrachmi*. For the clearing of this matter I refer the Reader to the learned Biſhop of *Bath* and *Wells*, in his ingenious enquiry into the State of *ancient Weights and Meaſures*, *pag.* 196. the whole being too long to inſert here.

The *Rabbins* affirm that the *Jewiſh* Weights and Coins received a conſiderable alteration after the *Babyloniſh* Captivity, of which there cannot be a more diſtinct Account than what is given by the above-mention'd learned Prelate. "The Standard of their Money "under the ſecond Temple was ⅔ of that under the firſt. Theſe "new pieces of Money went alſo under different names, than thoſe "had with which they nearly correſponded. For the ⅔ of the "old *Shekel* was ſtyled a *Sela*; and the ⅔ of a half *Shekel* was cal-"ed a *Tobba*; and the ⅔ of a quarter *Shekel*, a *Deinar*; and the "*Gera*, which was the 20 of an old *Shekel*, and was now to be "the 24 of the new *Sela*, tho' it remained in the account, yet "took a new name; and was termed a *Mea*. Theſe *Chaldaick* "or *Syriack* appellations (as all are ſo, excepting the *Deinar*) theſe "new Coins are preſumed to have brought from *Babylon*: "and another Coin was alſo added thence to the old number; "which was a double *Sela*, and ⅔ of a double *Shekel*, and called "a *Darcon*. All theſe pieces of money down to the *Gera*; or as "they call it *Mea*, which is they ſay the loweſt Silver piece; and "alſo the minuter Subdiviſions of the weight of that Species into "Grains, and *Peruta's*; are with the relation they bear to one a-"nother repreſented in the Table ſubjoined.

Peruta								
2	Granum							
32	16	Mea						
192	96	6	Deinar					
384	192	12	2	Tobba				
768	384	24	4	2	Sela			
1532	768	48	8	4	2	Darcon		
38400	19200	1200	200	100	50	25	Maneh *or* Mani	
2304000	1152000	72000	12000	6000	3000	1500	60	Kibbera

The *Meah* is believed to be a *Chaldæan* word. The *Chaldæan Paraphraſt* renders *Gerah* (*Exod.* xxx. *Ezek.* xlv.) by *Meah*, as the LXX does by *Obolus*. The *Sela* conſiſting of 24 *Meahs*, and the *Shekel* of 20 *Gerahs*, the *Deinar* of 6, and the quarter *Shekel* of 5, will make the *Shekel* bigger by one ſixth part. The learned Prelate abovemention'd is of opinion that this increaſe of the *Jewiſh* money after the *Babyloniſh* captivity, is but an invention of the *Rabbins*, and that *Joſephus* and *Philo*, who ſtill make the *Jewiſh* "*Shekel* equal to the *Attick Tetradrachm*, muſt be allowed to take "place before the Compiler of the *Miſna*, their authentick tradi- "tion, if wrote as early as they would have it, and in the time "of *Adrian*; and as for the *Talmud* or Comments on that *Miſna*, "they are undoubtedly late compoſitions of hearſays, and taken "up at a great diſtance from the times they ſpeak of.

He has given a moſt ingenious reaſon for this invention: which I will ſet down in his own words. "For when upon the deſtru- "ction of the Temple by *Titus*, the *Jews* were conſtrained to pay "the half *Shekel* yearly due to That, into the *Roman* Treaſury; it "was then their intereſt to bring this offering to a low Eſtimate, "at ſome favourable opportunity: And this they might effect, to "the diminution of it to a ſixth part, if they could perſuade one "of the mild Emperors after *Hadrian*, who had not been provoked "by them, *Alexander* for example, that ſuch *Shekels* as had "been coined by their late Princes, ſuch as they now ſhew to per- "ſuade us into that opinion, were the old ones in which that

" duty was to be paid by their Law. And ſuch a perſuaſion " might be the more acceptable to the *Romans*; becauſe it gave " their Standard ſo high an Antiquity, and made it as old as *Mo-* " *ſes*. For ſuch a notion from the *Jews* would have been as flat- " tering now to their Maſters, as the Coinage had been before: " And they might by it claim ſome kindred with them, as their " Anceſtors had prepared for it before; when in their exigence " they challenged kindred with the *Spartans*; who, as *Dionyſius Ha-* " *licarnaſſeus* tells us, had a better title to that ambitious pretence.

He propoſes the *Phœnician* money as a *medium* to attain the knowledge of the *Hebrew*, for ſeveral very weighty conſiderations; particularly the *Tyrian Talent* is ſaid by ancient Authors to be equal to the *Attick*.

There is mention made in the Scriptures of a *Keſitah* or Lamb, *Gen.* xxxiii. 19. *And he bought a parcel of a field, where he had ſpread his Tent, at the hand of the Children of Hamor Shechem's father, for an hundred pieces of money,* (*Keſitoth, which ſignifies Lambs. Every one gave him a piece of money, Job* xlii. 11. This piece of Money was ſo called from the Stamp of a Lamb.

When the word *Keſeph* is put with a number in the Old *Teſtament*, and rendered in our tranſlation pieces of Money, it is commonly underſtood of *Shekels*.

In the new *Teſtament* the Coins commonly mention'd are the *Roman Denarius*, the *As*, the *Aſſarium*, *Matth.* x. 29. determin'd by *Cleopatra* to be $\frac{1}{4}$ of the *As*: *Quadrans*, $\frac{1}{4}$ of an *As*. *Matth.* v. 26. and the half of the *Quadrans* called λεπτὸν, which we tranſlate a *Mite*.

CHAP.

CHAP. VI.

Of the Proportion of the Value of Gold to Silver amongſt the Ancients, and of their Gold Coins.

THE loweſt Rate of Gold we find mention'd amongſt the *Romans*, came from an accidental cauſe. The vaſt quantity of Gold which *Julius Cæſar* had got by plundering Cities and Temples (which, as *Suetonius* ſaith, he deſtroy'd from a motive of Covetouſneſs, rather than Revenge) made it ſuch a drug, that [a]he exchanged a Pound of Gold for 3000 *Nummi*: In 3000 *Nummi* there are 750 *Denarii*, and in a pound 84 *Denarii*; therefore according tothis Reckoning, the proportion of the value of Gold to that of Silver is as 750 to 84, or as 123 to 14, which is nearly as 9 to 1. Some Authors from this paſſage of *Suetonius* infer that the proportion was $7\frac{1}{2}$ to 1; but this miſtake ariſeth from their conſidering the *Roman* Ounce as conſiſting of 8 *Denarii* as the *Attick*, whereas it conſiſted but of ſeven.

The moſt common, conſtant, and ſtated rate of Gold to Silver was the *Decuple*, which [b]*Julius Pollux* confirms from *Menander* the Poet, calling a *Talent* of Gold δεκατάλαντον.

[c]Thus *Heſychius* from *Polemarchus*; *An Aureus is 2 Drachms, and a Drachm of Gold is worth 10 Drachms of Silver.* [d]The ſame proportion is aſſign'd by *Livy*, it being permitted to the *Ætolians* to pay one *Talent* of Gold for 10 of Silver. The ſame proportion is allowed by [e]*Suidas*.

[a] Suet. in Cæſare cap. 54. In Gallia fana templaque Deum, donis referta expilavit, urbes diruit, ſæpius ob prædam quam ob delictum; unde factum eſt, ut auro abundaret, temniſque millibus nummum in libras promercale per Italiam provinciaſque divenderet. [b] Lib. 9. c. χρυσὸν παρὰ τοῖς ἀττικοῖς πολέμαρχος ἐπὶ δύναδς δεκαπέντε δύο, ἡ δὲ χρυσῆ δεκαπλῆν νομίσματος ἀσσυρικὰ δραχμὰς δέκα. [d] Livius lib. 8. Dec. 4. Si pro argento aurum dare mallent, dare convenit, dum pro argenteis decem aureus unus valeret. [e] δεκαπλῆ ἡ ὁλκὴ νομίσματος εἰς ἀργυρίου λόγον δεκαπλῆς δέκα.

The *duodecuple* proportion is mention'd by *Plato* in *Hipparcho*, who makes Silver to Gold δωδεκαπλάσιον.

Staniſlaus Grſepſius a learned *Polander* endeavours to eſtabliſh the *duodecuple* proportion among the *Jews*, by comparing ſome paſſages of Scripture together, and with others in *Joſephus*. But I believe they will hardly prove his point. The proportion of the value of thoſe Metals amongſt the *Jews*, was the ſame as amongſt their neighbour Nations.

There is another proportion aſſign'd for the Claſſical age, *viz.* that of 12 ½ to 1: Which they ſay is plain, becauſe the *Roman Aureus*, ſuppoſing it equal to the *Attick Didrachm*, was exchang'd for 25 *Denarii*. This indeed is evident; for *centum Aurei*, the fee of Advocates in *Ulpian*, is expreſs'd by *Tacitus*, *dena Seſtertia*. That is 100 *Aurei* are equal to 10000 *Nummi*; or 1 *Aureus* equal to 100 *Nummi*: from which it follows that 2 *Drachms* of Gold were worth 25 in Silver, 100 *Nummi* being 25 *Drachmæ* or *Denarii*. And the *Centeni Nummi* of [f] *Tacitus* is called by [g] *Suetonius* an *Aureus*, both of them ſpeaking of the Liberality of *Otho* to *Galba's* Guards.

Dion affirms directly that an *Aureus* was worth 25 *Drachmæ*, which *Xiphilinus* reads 25 *Denarii*.

But here a difficulty ariſeth; for it was as certainly known that the *Attick Aurei* changed at the rate of 20 *Drachmæ* of Silver for 1 of Gold. *Zonaras* ſaith in expreſs Terms, that amongſt the *Romans* an *Aureus* was exchanged for 25 *Drachmæ*, amongſt the *Athenians* only for 20. If the Coins were of the ſame fineneſs and weight, this would make a great difference in the value of the two Mettals in two Cities, which were in conſtant Commerce with one another. This is a direct impoſſibility, becauſe the Silver would be exported from the one place, and the Gold from the other, until the Balance was juſtly ſettled. There are but two ways of ſolving this difficulty, by ſuppoſing the *Roman Aureus* finer, or heavier

[f] Tacitus de Othone loquens, ait, Cohorti excubias agenti viritim centenos nummos dividit. [g] Sueton. in Othone. Nullo igitur officii, aut ambitionis genere omiſſo, quoties Cœna Principem acciperet, aureos excubanti cohorti viritim dividebat.

vier than the *Attick*. G. *Agricola* and ſome others take the former, and *Gronovius* I think for very good reaſon the latter.

Agricola reaſons thus: *Crates* a Comick *Athenian* Poet, makes the *Semiſexta* of an *Aureus* equal to 8 *Oboli*, therefore 16 *Oboli* were equal to a *Sexta*, but 6 *Oboli* were equal to a *Drachm*; Therefore 6 times 16, making 96 *Oboli*, or 16 Silver *Drachmæ*, were equal to the *Aureus* of 2 *Drachms*. Conſequently there muſt have been one 5th part Braſs in it; for if it had been of pure Gold like the *Darick*, it would have been exchang'd for 20 Silver *Drachms*. But the misfortune of this Argument is, that the *Athenian Didrachm* and *Darick Stater* were commonly exchang'd for one another: and the *Athenians* had the reputation of having the fineſt and faireſt Coins in the world. κάλλιστα πάντων, &c. *Ariſtophanes*.

They urge likewiſe for this opinion of the proportion of Gold to Silver, being 12 ½ to 1, a paſſage of *Pliny*, where he ſaith the *Byſſin*, a ſort of ſubſtance which the Ladies ſpun into thread, was exchanged like Gold for 4 *Denarii* the ſcruple. That makes the *Didrachm* 24 *Denarii*. But this paſſage is nothing to the purpoſe, for if *Drachma* here be meant of the *Attick Drachm* of which the *Aureus* made two, it will make the proportion of 12 to 1. If it be underſtood of the *Roman Drachm* one 8th of their Ounce, it will make it 13,7 to 1, neither of which is to the purpoſe. Therefore in all appearance *Pliny* put a round number near the truth rather than a fraction. For which reaſon *Gronovius* believes that the *Decuple* proportion ſubſiſted, but that the *Roman Aurei* were firſt of a greater weight, than the *Athenian Didrachmus*, which he thinks is juſtified by the weights of ſeveral ſtill extant. The *Roman Aurei*, which were firſt coin'd of 7 ½ Scruples came by degrees in *Conſtantine*'s time to be only 4 *Scruples*, called *Solidi*, and ſometimes *Sextulæ*.

A paſſage in the *Code*, *de Argenti pretio*, runs thus, *Jubemus ut pro Argenti ſumma quam quis Theſauris fuerit illaturus, inferendi Auri accipiat facultatem, ita ut pro ſingulis libris Argenti, quinos ſolidos inferat*. Suppoſing the *Solidi* to be 4 Scruples, 20 Scruples of Gold

Gold were changed for 288 *Scruples* of Silver, this makes the proportion of Gold to Silver as 14 $\frac{2}{5}$ to 1.

[a] There were of *Grecian* Gold Coins, the *Stater Aureus Atticus*, which was a *Didrachm*, the weight of two *Drachms*.

Alſo ſome *Tetradrachms* called Γλαῦκες λαυριωτικαὶ, *noctuæ laureoticæ*, from the Stamp of an *Owl* upon them.

There was likewiſe the *Stater Aureus Philippæus*, *Didrachms* ſtruck by *Philip* of *Macedon*. *Horace* terms them in ſhort, *Philippos*.

Rettulit acceptos regale nomiſma Philippos.

Thoſe according to their weight and the *Decuple* proportion of Gold to Silver, which then obtain'd, were worth 20 *Drachms* or *Denarii*, or 12 *s.* 11 *d.* It was obſerv'd before that the *Roman Aurei* falſly ſuppos'd to be of the ſame weight, were worth 25 *Denarii* or 16 *s.* 1 $\frac{3}{4}$. *d.*

Stater Alexandrinus, ſome *Didrachms*, ſome *Tridrachms*.

Stater Aureus Pruſii King of *Bithynia*.

[b] *Stater Cyzicenicus*, exchanged for 28 *Attick Drachms*, *i. e.* 18 *s.* 1 *d.* Some make the *Stater Alexandrinus* and the *Stater Philippicus* of the ſame value with the *Stater Cyzicenicus*: and accordingly they are ſtated in the Tables.

The *Cyzicenian Staters* were ſtampt with the figure of a *Cybele*.

There is mention made of a *Stater* of the *Phocaitæ*, by *Thucydides*. *Phocæa* was a City in *Ionia*.

Δαρικὸς or Δαρεικὸς, [c] firſt they were coin'd *Didrachms*, but afterwards they were coin'd *Tetradrachms*: and *Joſephus* makes them equal to the *Jewiſh Shekel*.

Julius Pollux makes a *Stater* worth a *Mina*, which muſt be underſtood of one of 8 *Drachms*; according to which proportion the *Tetradrachm* was worth 50 *Attick Drachms*. This proportion is obſerved in the Tables, which I have not chang'd, being according to the *Roman* way of reckoning, 25 *Denarii* for the

[a] Pollux lib. 4. cap. 24. [b] Demoſthenes, ὁ δὲ κυζικηνὸς στατὴρ ἠδύνατο ἐκεῖ καὶ ὀκτὼ δραχμὰς ἀττικάς. [c] Suidas.

× See Smith 192. Langwith.

the *Aureus*: tho' the *decuple* proportion of Gold to Silver obtain'd and was the moſt common way of computing.

The *Hebrew Aureus* was ſometimes *drachmal*, or $\frac{1}{25}$, ſometimes $\frac{1}{2}$ of the *Shekel* or Silver Coin. It was called *Darckmon*. We have obſerv'd before that *Joſephus* differs from the *Rabbins* in the account of the *Jewiſh* Weights and Meaſures: according to his reckning, the *Shekel* is equal to the *Attick Tetradrachm*; according to the *Rabbinical* account, it is equal to four *Roman Drachms*, or $\frac{1}{2}$ of the *Roman* Ounce. Thoſe two ways of reckoning will make an 8th part of difference in the value of their Gold as well as Silver Coins.

The *Pondo* or *Libra Auri* amongſt the *Romans*, and the *Mna* amongſt the *Greeks*, when it is nummary, or put for a Sum of money, always ſignifies 100 *Drachmæ*.

The general ſuppoſition of Authors is, that there was a 50th part of Alloy in the Gold Coins of the Ancients.

I have eſtimated the Gold Coins according to the proportion of Gold to Silver, which then obtain'd. They would be of more value now amongſt us according to their weight and fineneſs.

CHAP. VII.

Of ROMAN, GREEK, *and* ARABIAN *Weights.*

ROMAN *Weights.*

THE *Romans* uſed the *Libra*, which they divided into 12 *Unciæ* or Ounces, and the later *Greeks* in imitation of them had their *Litra*, which they divided after the ſame manner. This is plain from abundance of Authors, *Voluſius Metianus*, *Galen*, &c.

They

They divided their Ounce into 3 *Duellæ*, and likewiſe into 6 *Sextulæ*. *Rhemnius Fannius*,

—— Drachmæ ſcrupulum ſi adjecero, fiet
Sextula quæ fertur, nam ſex his uncia conſtat.
Sextula cum dupla eſt veteres dixere Duellam.
Duella Obolos habet ſedecim, ſcrupula octo.

Another diviſion of their Ounce was into 4 *Sicilici*. *Sicilicus* ſo called according to *Feſtus Pompeius*, *quod ſemiunciam in duas partes ſecet*. *Rhem. Fannius*,

Drachmam ſi gemines, aderit, quem dicier audis
Sicilicus.

Sextula among the *Greeks* was called ἑξάγιον and corruptly ϛάιγον: ἡ ὐγία ἔχει ϛάγια ἓξ. *Interpres Nicandri.*

They likewiſe divided their Ounce into 7 *Denarii*. *Corn. Celſus lib.* 5. *cap.* 17. *Sed antea ſcire volo in uncia pondus Denariorum ſeptem eſſe. Plin. lib.* 33. *cap.* 9. ſpeaking of the *Denarius*, *alii de pondere ſubtrahunt, cum ſit juſtum octoginta quatuor e libris ſignari.* 84 in 12 Ounces is juſt 7 in an Ounce.

Then they divided it into 8 *Drachms*. *Fannius*, *Galenus*, *Dioſcorides*, *Plinius*, &c.

The 12th part of an Ounce they called *dimidia Sextula*, it was likewiſe divided into 24 *Scrupula* or rather *Scriptula*. The *Greeks* called them γεγράμματα. *Fannius*,

Semioboli duplum eſt Obolus, quem pondere duplo
Gramma vocant, Scripulum noſtri dixere priores.

The *Denarius* was divided in two *Victoriati*, not only as a piece of money, but as a weight. *Plin. lib.* 21. *cap.* 24. & *lib.* 24. *cap.* 2, 5, 6. and *Scribonius Largus* in many places.

The

The *Denarius* was alſo divided into 6 *Sextantes*, *Cor. Celſus*, *lib.* 5. *cap.* 7. 17. in imitation of the 6 *Oboli* of the *Drachma*, according to which diviſion a *Sextans* would contain in *Engliſh Troy* weight about 6 $\frac{1}{2}$ Grains.

Cornelius Celſus, *lib.* 4. *cap.* 4. mentions the *Quadrans Denarii*. *Aut ſulphuris ignem non experti pondo* x *&* *quadrans*. And likewiſe the *Triens Denarii lib.* 4. *Salis Ammoniaci*, *P.* 3. *hoc eſt*, *Pondo triens*.

The value of the *Roman* Pound is determin'd as in the Tables from the value of the *Denarius*, *viz.* 5245 $\frac{1}{2}$ *Troy* Grains; according to the common reckoning, it is 5256; this ſmall difference, as I have ſaid before, proceeds from aſſuming the *Averdupois* Ounce to the *Troy* Ounce preciſely as 51 to 56. The reſt of the parts of the pound follow from this, as in the Tables.

GREEK *Weights*.

THE *Talent* was the greateſt Weight as well as the greateſt Sum of money among the *Greeks*. And this ponderal *Talent* was divided, as the nummary *Talent*, into 60 *Minæ*, and every *Mina* into 100 *Drachmæ*. The Coin was ſo call'd, becauſe it weighed a *Drachma*. *Rhemnius Fannius*,

In Scrupulos ternos Drachmam, quo pondere doctis
Argenti facilis ſignatur nummus Athenis.

A *Drachma* was $\frac{1}{8}$ of the Ounce, and $\frac{1}{100}$ part of a *Mina*; tho' perhaps this way of reckoning by Ounces and Drachms was borrowed by the *Greeks* from the *Romans*; for the old Diviſion of the *Drachma* was into 6 *Oboli*. *Suidas* δραχμα ἐξ ὀβολῶν. The *Didrachmum*, *Hemidrachmum*, &c. expreſs'd Weights as well as Coins. The *Greeks* uſed the expreſſion τρίτον ἡμιδραχμον, to ſignify 2 $\frac{1}{2}$ *Drachms*, as well as τρίτον ἡμιτάλαντον.

An *Obolus* contain'd 6 χαλκοὶ, or as the *Latins* call them *Æreoli*. *Suidas ex Diodoro*, ὁβολὸς παρὰ Ἀθηναίοις ἔξ ἐστι χαλκῶν. An *Obolus* among the *Athenians* conſiſts of 6 *Æreoli*. The *Greeks* uſed the word διώβολος; the *Latins* tranſlated it not *diobolus*, but *duos Obolos*. *Plin. lib.* 20. *Mox in Aceto pondere Obolorum duum.* And almoſt every where ſo.

An ἡμιώβολον, or *Semiobolus*, contains one *Siliqua* and one half; and 4 *Æreoli* according to *Cleopatra*, but 3 only according to *Diodorus apud Suidam*.

Χαλκοῦς, or *Æreolus*, contain'd the 6th part of an *Obolus*: and 7 λεπτὰ, according to *Suidas*. ὁ ὃ χαλκοῦς λεπτῶν ἑπτὰ. that is, contained 7 λεπτὰ.

Λεπτὸν was the 7th part of an *Æreolus*, and was called by the *Latins Minuta*, and ſometimes *Minutia*, and is not divided into any leſſer Weight.

The *Greeks* uſed the ὄγκια and divided it as the *Romans* did: when they began to uſe that Meaſure, is ſomewhat uncertain. I did not think there was any particular Table neceſſary for that diviſion of *Grecian* Weights. They us'd the κεράτιον, in *latin Siliqua*, which was the 18th part of a *Drachma*, as appears from *Heſychius*.

The *Medical* Weights, were the *Mina*, of 16 *Roman* Ounces, as appears by *Dioſcorides* and *Galen*, and *Cleopatra* in *Coſmeticis*, who tells you that *Mina* as a Weight contains 16 Ounces, 128 *Drachms*, 384 *Scripula*, 768 *Oboli*, 1052 *Lupini*, 2304 *Siliquæ*, 6144 *Æreoli*. But when *Celſus* and *Scribonius Largus* make uſe of a *Denarius* of about 62 $\frac{22}{43}$ Grains, the *Drachma* being ſuppoſed equal to that, 100 ſuch *Drachmæ* muſt have made a *Mina* of 6222 $\frac{22}{43}$ Grains, whereas a *Mina* of 16 Ounces is about 7000 *Troy* Grains, or our *Averdupois* pound. The reaſon of this difference is aſſign'd before.

The Phyſicians likewiſe made uſe of the *Litra* of 96 *Drachms*. The ὄγκια or *uncia* being divided as uſually. This laſt way of reckoning was common after *Galen*'s time. The κεράτιον or *Siliqua*, mention'd

mention'd before, was likewiſe a common weight amongſt the Phyſicians: and the σιτάριον or Grain, $\frac{1}{7}$ of the *Siliqua*.

There were among the *Greeks*, *Hippoiatrical*, or what we might tranſlate in *Engliſh*, *Farriers* weights: or, as they were called by ſome, *Mulomedici*, *Mule Doctors*. They are mention'd by an uncertain *Greek* Author. The *Mina Hippoiatrica* contain'd 15 Ounces, ὁλκὰς 112 $\frac{1}{2}$, the *Litra* contain'd 90 *Drachms*, the Ounce 7 $\frac{1}{2}$ *Drachms*; the *Drachm* 3 *Scruples* or 6 *Oboli*.

The *Romans* dividing their *Ounce* into 7 *Denarii*, and likewiſe into 8 *Drachms*, the *Greeks* of later ages dividing likewiſe their *Ounce* into 8 *Drachms*, and the *Roman Denarius* being ſuppos'd equal to the *Greek Drachma*, have occaſion'd great confuſion in the expreſſions of Authors, about the weights of both Nations, moſt of them aſſerting that the *Attick Tetradrachm* was $\frac{1}{2}$ of an *Ounce*, and the *Didrachm* $\frac{1}{4}$, *&c.* This difficulty has been ſtill encreas'd by the Diminution of the weight of the Coins of both Nations. Beſides ſome of the antient *Attick Drachms* weighing 67 Grains, and the *Denarii* only 62, occaſion'd a new difficulty how to preſerve the equality that is ſuppoſed betwixt theſe two Coins.

The learned Biſhop *Hooper* ſuppoſes that "the *Attick Drachma* "might change as a Coin, and the Weight continue the ſame: "that when the *Athenians*, in imitation of the *Romans*, divided their "Ounce into 8 parts under the name of *Drachmas*, for the eaſier "management of this account they divided not their 100 *Drach-* "*ma's* into 12 Ounces, but 100 lacking 4; by which means, in "perfect conformity to the old *Roman* diviſion, and to the latter "of the Ounce into eights, they had a *Litra* of their own, want- "ing but little of their *Mina*, and conſiſting of 96 of their own "*Drachma's*, ſuch as were not 96 of the *Roman*, but *Attick* "Pound.

It is evident there was an ancient *Attick Mina* of 16 *Roman* Ounces. All Authors, and particularly the fragment printed with *Galen* of the Compoſition of *Medicines*, agree in this. It is affirm'd, in *Cap.* 2. of the fragment, that the *Attick* and *Ægyptian Mina* contain

16 Ounces. *Cleopatra cap.* 7. ſaith a *Mina* weighs 16 Ounces. But in another place of the ſame Author it is ſaid, an *Attick Mina* has 12 Ounces, (the *Semis* is here omitted) and another *Mina* has 16 Ounces. When they ſpeak of Ounces, they mean the *Roman*, which is our *Averdupois* Ounce. By which it ſeems there are two different *Minæ* deſcrib'd, one of 12 ½ Ounces, which I ſuppoſe was the latter, and another of 16 Ounces the more antient. So that the moſt ancient *Mina Attica* was exactly our *Averdupois* Pound. This agrees with the *Talents* beforemention'd, in which *Antiochus* was order'd to pay his Tribute. *Livy* ſaith that each *Talent* was to conſiſt of 80 *Roman* Pounds, that is of 960 *Roman* Ounces, which are exactly the number of Ounces in a *Talent* of 60 *Minæ*, when each *Mina* contains 16 Ounces.

That the *Attick Drachm* fell from 70 Grains to about 62 $\frac{11}{25}$ is as plain, becauſe it was equal to the *Roman Denarius* of that weight. Therefore I thought fit to adjuſt likewiſe the Weights of that time according to this Standard: for undoubtedly there were ſuch weights which the Phyſicians uſed, who, tho' they might reckon according to the weight of the Money, they did not weigh their Drugs with pieces of Money. And it is plain likewiſe from their Preſcriptions that they often follow'd *Hippocrates* in his Doſes, and no queſtion adjuſted their weights to thoſe which he uſed. Therefore I have fram'd one Table of the elder *Greek* weigthts with a *Drachm* of 70 *Troy* Grains, and a *Mina* equal to our *Averdupois* Pound; and two other Tables of later *Greek* and *Roman* Weights blended together, one for the leſſer, and another for the greater, which is proper for thoſe times when both Nations reckon'd after the ſame manner: The *Greeks* making uſe of the *Roman* λίτρα and its Subdiviſions, which I ſuppoſe all this while did not change.

This is the ſuppoſition of moſt Authors who have wrote upon the Subject; and if it be an Error, it is a very general one. And I may at leaſt be forgiven for underſtanding them according to the plain ſenſe of their words, as they are printed.

Accipe

Accipe præterea parvo quam nomine Graii
Mnam vocitant, noſtrique Minam dixere priores.
Centum hæ ſunt Drachmæ; quod ſi decerpſeris illis
Quatuor, efficies hanc noſtram denique Libram,
Attica quæ fiet, ſi quartam dempſeris hinc Mna.

Rhemn. Fannius.

Cleopatra Cap. 7. (before cited) ſpeaks of two different *Minæ*, the firſt of 16 Ounces; and afterwards adds *Mina Attica habet* ℥*xii. ſemis, i. e.* has 12 ½ Ounces; which I think muſt be underſtood of the ſame denomination with the former, *viz. Roman* Ounces. And again, *cap.* 8. The *Attick Mina* has 12 Ounces (the *Semis* muſt certainly have been forgot.) There is another, ſaith he, of 16 Ounces, which is the old *Mina* of all mention'd before.

Dioſcorides mentions only that of 16 Ounces; and tho' it is mentioned by the *Phyſicians*, it is not what they preſcribed by, but perhaps like our *Averdupois* weight, what their groſs drugs were at firſt ſold and bought by.

I am far from being poſitive in this *hypotheſis*; for I think that of the learned Biſhop ſo often mention'd, *viz.* That the *Athenians* had a *Libra* of their own, conſiſting of 96 of their own *Drachms*, is ſupported with very ſtrong arguments; and to confirm it ſtill more, that learned Prelate has reſtored ſome of the Readings of the Authors with great ſagacity.

ARABIAN *Weights.*

THE *Arabian* Weights us'd by their Phyſicians, *Serapio*, *Rhaſis* and *Avicenna*, are a mixture of the *Greek* and *Roman* Weights, and derived from them. Their *Manes* is a corruption of the *Hebrew Maneh* or the *Greek Mina*: there were two of them,

one of twenty Ounces, and another of ſixteen. I refer the Reader to the Table for the beſt account that is given of them by their own Authors. But I truſt more to that of the learned Biſhop of *Bath* and *Wells*.

The *Ratel* or *Litra*, (called *Rotulus* in the Tables,) uſed all over *Ægypt*, and the neighbouring Eaſtern Countries, is as the Biſhop obſerves " of different quantities in ſeveral places, and in the ſame " place for ſeveral goods; but always divided into 12 parts, " which are their Ounces. Theſe Ounces therefore are different; " and in this that ſome conſiſt of more, ſome of fewer little " Weights, which they call *Dirhems*, which are always the ſame.

This conſtant univerſal weight a *Dirhem* is divided into 12 *Carats*, and each *Carat* into 4 Grains; the whole number of Grains in a *Dirhem* being 48. This account the Biſhop takes from *Golius*, *Lex. Arab.* Theſe grains, according to Mr. *Greaves*'s account, " are almoſt the ſame with ours, 48 of our Grains exceeding 48 " of theirs, or their *Dirhem*, only by 0,18 parts of a Grain. Con- " ſequently our Pennyweight exceeds their half *Dirhem*, by 0,09 (not " the tenth of a ſingle Grain.) And ſo our *Troy* Ounce = 20 penny- " weights, is not two whole grains more than 10 of their *Dirhems* = " 480 of their Grains; and therefore may very well paſs for one " of thoſe various Ounces of *Ægypt*, and which conſiſted of 10 " *Dirhems*.

" Of the ſeveral Ounces, that of 12 *Dirhems* is eſpecially to be " mark'd. It is ſpecified by *Golius* as the Ounce by which things " of leſs bulk and greater value, particularly *Medicinal* Drugs, are " uſually weighed: And this is the Ounce or $\frac{1}{12}$ of that *Ratel* of " *Cairo* which Mr. *Greaves*, by experimental obſervation, gives us " at 6886 of our *Troy* Grains, and is = 12 × 12 × 48 = 6912 of theirs, " as the Ounce accordingly is = 573,8 of our Grains, and 576 " of theirs.

" And here it is apparent, that their number of Grains to the " *Cairo* Ounce 576, is the ſame number of Grains which the *Ro-* " *mans*, and *Spaniards* and *French* reckon to their Ounce, tho'

" much

" much leſs. And that the number 6912 in the *Cairo Ratel*,
" is the ſame with that of Grains in the *Roman* Pound, and in
" ſuch a *Spaniſh* and *French* Pound, as is counted by 12 Ounces.

" It is alſo obſervable, that the *Cairo Ratel* differs ſo little from
" the *Spaniſh*, and our *Averdupois* Pound, which are of 16
" Ounces, and from the *Roman Mina Medicorum* which reckons
" as many; that it may well be eſteem'd as the Standard, from
" whence the *European* were deſign'd to be taken.

" And we ſhall leſs wonder at all theſe particulars, as that our
" *Troy* Grains are found equal to theirs, and our Pennyweight
" (our *Silverling*) to their half *Dirhem*; or that the Diviſion of
" the *European* Ounce was fram'd by that of *Cairo*; or that thoſe Pounds
are from the *Ratel* of that place: when we conſider that *Cairo* or *Mem-*
" *phis*, in whoſe ſtead it ſucceeded, was in the heart of *Ægypt*; and in
" the way from the *Red Sea* (by which all the *Arabian* and *Indian*
" Goods were brought, 'till about 300 years ago) to *Alexandria*;
" that *Alexandria*, until then, had been the great Mart for all the
" Countries in the *Weſt*: And that the *Saracens* were not only
" near and powerful neighbours to them, but drove a flouriſhing
" Trade amongſt them; and with their *Jews*, who were then
" the great dealers in Money.

" Now as our *Troy* Weight has appear'd to have been borrow'd
" by us, from none of our *European* neighbours, but from *Ægypt*: ſo
" too the *Averdupois*, tho' the ſame with the *Spaniſh* Pound, may
" ſeem not to have been wholly owing to them; but to have
" been adjuſted at leaſt by us from the *Cairo Ratel*. For the Ounce
" we have, we divide not ſo into Grains, as the *Spaniards* do: and
" we who borrow'd not our Ounce of 10 *Dirhems* at ſecond hand,
" need not be thought to have taken that of about 9 *Dirhems*, the
" *Spaniſh* or *Roman* Ounce from any but the Original. And ſo
" our *Edward* the firſt, who again ſettled our Meaſures upon a
" certain Standard; and who had indeed been a viſitant in *Spain*,
" but upon action in the *Holy Land*, may be fairly preſum'd to
" have fix'd both the one and the other Pound by the Meaſures of
" the *Eaſt*.

CHAP.

CHAP. VIII.

Of Meaſures of Length, and Superficial Roman *Meaſures.*

IN the Conſtruction of the Tables of *Roman* Meaſures of Length, I have follow'd Mr. *Greaves*, and taken the proportion from the *Coſſutian* foot in *Rome*, which according to the *Engliſh* Standard is 11,604 Inches.× The reſt of the Meaſures are founded on known proportions.

Digitus latus or *tranſverſus* is the fourth part of a *Palm*, or the 16th part of a foot.

[a] *Uncia* contains a *digit* and a third part, it is the third part of a *Palm* and $\frac{1}{12}$ of a *Foot*. For the *Pes* or Foot, like an *As* or Unite, was divided into 12 parts. [b] *Roman* Authors inſtead of *Uncia* uſe *Pollex* ſometimes.

Palmus a Palm is $\frac{1}{4}$ of a *Foot*, from whence [c] *Columella* uſes the expreſſion *ad Palmum decoquere*.

This Palm was called the *Palmus Minor* to diſtinguiſh it from a greater, which ſome Authors make equal to 12 *Digits*.

Pes a Foot, as we ſaid before, was divided as the *As*. Thus [d] *Pliny* ſpeaking of *Cedar* Tables tells us, that *Tiberius* had a Table exceeding four Feet by a *Sextans* and a *Sicilicus*, that is by 2 inches and a fourth part: and that the thickneſs was *Seſcuncialis*, an inch and a half. Thus the ſame [e] Author ſpeaks of *folia Trientalia*, *Trientalis Herba*, that is 4 inches, and [f] *Herba Quincuncialis*: So likewiſe [g] *Beſſules Laterculi* in *Vitruvius*, are Tiles 8 inches long. [h] *Sulcus Dodrantalis* in *Varro*, is

a Julius Frontinus de Jure Limitum.
b Plin. lib. 15. cap. 24. c lib. 21. cap 33.
d lib. 13. cap. 15. Tiberio principi menſam quatuor pedes ſextante & Sicilico excedentem: totâ vero craſſitudine ſeſcunciali. c lib. 27. cap. 5. f Plinius lib. 27. cap. 11. g lib. 7. cap. 4 h lib. 3. cap. 19.

× See a good account of the Roman Foot from Greaves in the Supplement to Cellyers Dictionary under the word measure. Langwith.

is a furrow of 9 inches deep. [i] *Pliny* mentions Pygmies who were not higher than *ternos Dodrantes*, that is 2 Feet and a Palm. [k] *Vitruvius* ſaith, that ſteps ſhould not be thicker *dextrante*, *i. e.* than 10 inches, nor thinner than *dodrante*, *i. e.* 9 inches. In conſequence of the *Pes* being reckon'd the *As*, *Dupondium* is uſed for 2 Feet, as you may read in *Columella*; which ſentence at the bottom of the page might puzzle any Country-ſchool-maſter, if he were not advertiſed of the meaning; therefore ſuch little remarks, tho' they may ſeem trifling to ſome, are uſeful to others. In the Laws of the XII Tables, *Seſtertius pes* is uſed for 2 ½ Feet: and *tripedaneæ Statuæ* in [m] *Pliny* ſignify, Statues 3 Feet high: tho' *tripes* in *Livy* ſignifies one with 3 feet.

[n] A Foot was uſed for a little Meaſure proverbially.

The breadth of any Highway or Lane was to be at leaſt 8 Feet when ſtreight, and when turning, 16. by the Laws of the XII Tables.

Palmipes was another *Roman* Meaſure, the length of a Foot and a Palm, or 15 inches, or 20 *digits*. This Meaſure is uſed by [o] *Pliny*, [p] *Columella*, and [q] *Vitruvius*. *Cubitus*, ſometimes *Cubitum* in the neutral Gender, ſignifies the lower part of the Arm on which we lean. Κύβιτος or κύβιτον is a *Dorick* word, according to *Julius Pollux*; it is uſed among the *Romans* for a determin'd Meaſure of a Foot and a half. It contains, according to [r] *Vitruvius* 6 Palms or 24 *Digits*. From *Cubitus* is *Cubitalis*. Thus when *Pliny* ſaith that ſome [s] *Indians* had the ſoles of their Feet *Cubitales*, [t] and that the Tails of the Sheep in *Syria* were *Cubitales*, [u] and that ſome *Indian* Boars Tusks were *Cubitales*; it ſignifies according to *Engliſh* Meaſure 1 Foot, 5,406 Inches. [x] *Solinus* uſes *Ulna* for *Cubitus*. Where [y] *Pliny* ſpeaks of a *Crocodile* of 22 *Cubits* long, *Solinus* expreſſeth it by ſo many *Ulnæ*. And *Julius Pollux* takes both words for the

i Lib. 18. cap. 19. k Lib. 3. cap. 3. l Columella lib. 3. cap. 15. A calamo uſque ad proximum calamum non minus altum quam duos pedes & ſemiſſem planis: minus locis rotundis fodit, acclivibus in *Dupondium* & dodrantem præcipitibus etiam in tres pedes. m Lib. 33. cap. 6. n Cicero lib. 7. Epiſt. ad Atticum. Pedem in Italia video nullum eſſe qui non in illius poteſtate ſit. o lib. 17. cap. 20. p lib. 3. cap. 19. q lib. 10. cap. 21. r lib. 3. cap. 1. Cubitum animadverterunt ex ſex palmis conſtare, digitis viginti quatuor. s lib. 7. cap. 2. t lib. 8. cap. 48. u lib 8. cap. 52. x cap. 45. y lib. 8. cap. 25.

ſame: τὸν δὲ πῆχυν ὠλένην καλοῦσιν, they call a *Cubitus* an *Ulna*. [z] *Pliny* takes them for different Meaſures; for he ſpeaks of a *Platanus*, 15 Cubits long, but in thickneſs *quatuor Ulnæ*; by an *Ulna* he underſtands here, the length from the tip of one finger to the tip of the other, when a Man ſpreads his Arms. [a] For, ſpeaking of a Fir-Tree, he expreſſeth it thus. *Arboris ejus craſſitudo quatuor hominum ulnas complectentium implebat; & mox ibid. Maxima Cedrus in Cypro traditur ad undeciremem Demetrii ſucciſa, centum triginta pedum; Craſſitudinis vero ad trium hominum complexum.* This *Ulna* the *Greeks* expreſs by ὀργυιὰ, about 6 Feet: ſo that the Tree was 130 *Roman* Feet high, and 18 Feet in Circumference. [b] *Cælius* takes *Ulna* in the ſame ſenſe.

A Cubit was reckon'd by *Ariſtotle* the fourth part of the height of a well-proportion'd human body. For he ſaith a Man is ζῶον πεζὸν δίπουν τετράπηχυ, or a walking *Animal* with two feet, and four Cubits (above 6 Feet) high. There are ſeveral that paſs for human Creatures who are excluded by this definition.

Paſſus, ſo called a *paſſis pedibus*, is a ſpace of 5 Feet long. *Pliny* uſes this Meaſure frequently in deſcribing the diſtances of places. *Centenaria* and *Millenaria*, when join'd to Subſtantives, *paſſus* is often underſtood, as *Porticus Centenarii*, that is *Portico's* of 100 paces.

[c] *Decempeda* was a ſort of meaſuring Rod for taking the dimenſions of *Buildings*, *Areæ*, *Land*, *Ways*, *Meadows*, *Mines*, &c. and ſignified the ſame thing as *Pertica* taken as a Meaſure of length. From hence came *Decempedator* for a Surveyor uſed by [d] *Cicero*. [e] *Decempeda* was ſometimes uſed for the Meaſure likewiſe, by the ſame Author. [f] The common word for a Surveyor was *Finitor*, and the Law word *Agrimenſor*.

[g] *Stadium*

[z] Lib. 16. cap. 32. Antandri Platanus etiam circumdolatis lateribus reſtibili ſponte facta, vitæque reddita, longitudine XV Cubitorum, craſſitudine quatuor Ulnarum. [a] Lib. 16. cap. 40. [b] Lib. 4. cap. 3. Si ambas manus explices a pectore, in lineam rectam, ulna dicitur. [c] Palladius lib. 2. tit. 12. [d] Philip. 13. Cavebat etiam C. Antonio, qui fuerat æquiſſimus agri privati & publici decempedator. [e] Cicero Philip. 14. Quam jam peritus & callidus decempeda ſua ſaxa diviſerit. [f] Plautus in Pœnulo. Nunc regiones, limites, confinia determinabo: ejus rei ego ſum factus finitor: Et Cicero contra Trullum. Finitorem mittat, ratum ſit, quod finitor uni illi, a quo miſſus erit, renunciaverit.

[g] *Stadium* contain'd 125 *Roman* Paces, or 625 Feet, according to *Pliny* and *Columella*. *Pliny* tells you that *Pythagoras* a very ſagacious man reckon'd the diſtance of the Moon 126000 *Stadia*, and double of that to the Sun. A *Stadium* was $\frac{1}{8}$ of a *Roman* Mile, and equal to 120 *Engliſh* paces, 4 Feet and 4 Inches and $\frac{1}{2}$. According to *Pythagoras* therefore the diſtance of the Moon from the Earth is about 14418 $\frac{1}{2}$ *Engliſh* Miles.

Milliare ſometimes *Milliarium* ſo called from the thouſand paces which it contain'd. [h] *Vitruvius* makes 5000 Feet and 1000 paces the ſame thing. [i] *Columella* tells you that a *Stadium* has 125 *Paſſus*, 625 Feet, which multiplied by 8 makes a Mile. *Cicero* ſeldom uſes the word *Milliare*, but *mille paſſus*. The Miles of old were mark'd with Stones, which were uſed to expreſs Miles. Thus *ad ſecundum Lapidem*; *citra octavum Lapidem*; *ad Lapidem duodecimum*; *XX. ab Urbe Lapidem*. *Bis decimus Lapis ab Urbe*; denote ſo many Miles. *Centum Millia* is uſed in the Code, for *centum milliaria*. *Valerius Probus* ſaith the Ancients uſed *ad quartum Cippum*, inſtead of *ad quartum Lapidem*.

[k] *Boetius* mentions the *Gradus* as a *Roman* Meaſure, which may be tranſlated a ſtep, or the half of a *Paſſus* or Pace. But this word is not to be found in any Claſſical Author.

Some Writers mention *Granum* as a Meaſure, being the fourth part of a *Digit*. All the Meaſures are comprehended in theſe verſes.

Ex Granis Digitus quatuor formabitur unus:
Eſt quater in Palmo Digitus: quater in Pede Palmus:
Quinque Pedes Paſſum faciunt: Paſſus quoque centum
Viginti quinque Stadium dant: ſed Miliare
Octo dabunt Stadia: at duplicatam dant tibi Leucam.

Schonerus de uſu Globi, cap. 12.

[g] Plin. lib. 2. cap. 23. [h] Vitruv. lib. 10. cap. 14. [i] Lib. 5. cap. 1. [k] Decempeda decem pedes colligit, paſſus quinque gradus duos cum ſemiſſe.

Of Superficial Meaſures, and ſome Terms of Husbandry.

[l] *ACTUS* is the length of one furrow, as far as a Plough goes before it turns: it is properly tranſlated in *Engliſh* a Furlong. This Meaſure is uſed by *Pliny*. Taken as a determin'd Meaſure it is 120 *Roman* Feet.

The *Romans* mention an *Actus minimus*, and *quadratus*. They tell you that the *minimus* was 120 Feet in length, and 4 in breadth. So *Varro* and *Columella*. The *Quadratus* was the Square of 120 Feet, or 14400: [m] this was called *Modius* and *Mina*.

[n] *Clima* according to *Columella* is a Square, whoſe ſide is 60 Foot, being 3600 ſquare Feet.

Verſus was a length of 100 Feet, and a Square of 10000.

[o] *Jugerum*, ſo called becauſe it was a Space as much as could be tilled by a *Jugum Boum*, or Yoke of Oxen in a Day, and perhaps as *Pliny* thinks from the word *junctum*. *Jugerum* is the double of an *Actus Quadratus* or ſquare *Actus*, being in length 120 Feet, and in breadth 240, making in ſquare Feet 28800.

We may judge of the fertility of the *Roman* Land by ſeveral paſſages of *Varro* and *Columella*. [p] *Varro* tells you that every *Jugerum* of Vines yielded 600 Urns of Wine: according to this proportion, our Acre ſhould yield 55 hogſheads and a little more. *Columella* tells you that each *Jugerum* of Vines in *Seneca*'s land yielded 8 *Culei*, which makes 160 *Amphoræ*: according to which our Acre would yield about 29 $\frac{3}{7}$ hogſheads. The ſame Author ſaith that thoſe Vineyards ought to be extirpated which yielded leſs than three *Culei* the *Jugerum*; that is thoſe, where one of our Acres did not produce 11 hogſheads.

As for the *Indian* Whales of four Acres, I refer the Reader to *Pliny*. [q] Two *Jugera* were call'd by *Varro*, *Hæredium*, *quod Heredem*

[l] Plin. lib. 18. cap. 3. [m] Varro lib. 1. cap. 10. De re ruſt. [n] Columella lib. 5. cap. 1. [o] Plin. lib. 18. cap. 3. [p] Varro lib. 3. cap. 9. [q] Lib. 1. cap. 10. Columella in præfat. ad lib. 1.

dem ſequeretur. *Columella* tells you likewiſe that a Space of 180 Feet in length, and 30 in Breadth, was called [1] *Porca* by the Country people in *Bætica*. The ſame Author ſaith, that amongſt the *Gauls*, in Towns a Space of 100 Feet, and in the Country of 150 Feet was named *Candetum*: and that they called a *Semijugerum*, *Arpennem*.

[1] *Centuria* was a ſpace of 200 Acres; it took its name firſt from a hundred, and being doubled retain'd ſtill the ſame.

The *Jugerum* was an *Integer*, divided like the *As* into *Unciæ*, *Simiunciæ*, *Drachmæ*, &c. This appears from *Columella* and a paſſage in *Pliny*, and ſeveral other Authors.

Columella ſpeaks of a *Semiſcrupulum* of Ground as the leaſt part of a *Jugerum*, which contains 50 Feet, and make the 576th part of the *Jugerum*. *Varro* reckons the *Scrupulus* or 100 Feet the leaſt part. The Reader may ſee all the parts of the *Jugerum* in *Columella*, or in my Table. *Livy* uſes the ſame way of expreſſion. *Terna jugera & ſeptunces viritim diviſerunt*.

Of theſe *Roman* Meaſures, the Digit, Inch, Palm, Foot, Cubit, and Pace, were in uſe among the Architects. The Foot, Pace, *Stadium*, and Mile, among the Geographers. The writers of Husbandry reckon'd by Feet, *paſſus*, *actus*, *Climata*, *Jugera*, *Stadia* and *Centuriæ*.

Greek *Meaſures*.

THE *Romans* borrowed their Meaſures from the *Greeks*, being about 16 in number, and commonly taken from the members of a human body. Δάκτυλος a finger's breadth, the fourth part of a Palm and $\frac{1}{16}$ of a Foot, juſt as among the *Latins*. Φύλλα διδάκτυλα τὸ πλάτος, Leaves of the breadth of two fingers. Ῥίζα ὡς τεσσάκτυλος τὸ μῆκος, a Root of the length of 3 fingers. *Dioſcorides*.

Δοχμὴ, from the verb δέχομαι, which ſignifies to receive, a [2] Palm or 4 fingers breadth.

It

[1] Lib. 5. cap. 1.

[2] Pollux lib. 2 Δοχμὴ συγκλεισθείσης οἱ τέσσαρες δάκτυλοι.

It is likewiſe called Δακτυλοδόχμη in a compound word.

The Palm is likewiſe called δῶρον, becauſe a gift is made with the hands; ſo δίδωρον, τετράδωρον, πενταδωρον, ſignifie a courſe of 2, 4, or 5 Palms. [b] And ſo in *Homer* κέρα ἑκκαιδεκάδωρα, horns of 16 Palms long. It is alſo called ἡ παλαιστὴ, διπάλαιστος, τετραπάλαιστος, πενταπάλαιστος, So that theſe four words δοχμὴ, δακτυλοδόχμη, δῶρον and παλαιστὴ ſignify the ſame thing. A Reader of ancient Authors ought to be advertiſed of this.

[c] Λίχας is a meaſure of 10 δάκτυλοι or fingers, from the thumb to the long or middle finger.

[d] Ορθόδωρον is the length of the hand, that is from the upper part to the extremity of the longeſt finger, is reckon'd equal to 11 δάκτυλοι.

[e] Σπιθαμὴ is the length of the hand extended, between the thumb and the little finger. It is reckon'd equal to ¾ of a Foot, or 12 Digits.

Strabo calls the Pigmies τριπιθαμεῖς, which is wrong interpreted in *Latin trium Palmarum homines*, for it makes 2 foot and 3 inches. According to *Nicephorus*, our Saviour was ἑπταπιθμῶν, that is 5 *Græcian* Feet and a Palm. Δάξης according to *Heſychius* ſignifies the ſame thing with σπιθαμὴ.

Πῆχυς the foot according to *Herodotus*, *menſura* τετραπάλαιστος that is of 4 Palms. According to *Suidas* ὁ πῆχυς ἔχει δακτύλους ιϛ', that is, a foot has 16 Digits. It was likewiſe divided like a *Roman* foot into 12 Inches.

In the Reduction of this to *Engliſh* meaſure, we have ſuppos'd with the generality of Authors, that the *Grecian* Foot exceeded the *Roman* by a *Roman* half inch. Thoſe tell you, that there is ſtill at *Rome* a meaſure of 9 *Greek* Feet with the Inſcription ποδῶν θ. that is 9 Feet, which agrees with this meaſure, being in proportion to the *Roman* Foot as 25 to 24. The *Greek* Foot of *Pliny* in Dr. *Bernard* is 1,0104 which exceeds that of the Tables by $\frac{171}{10000}$, or about $\frac{1}{57}$ of an Inch. The learned Biſhop often mention'd, ſuppoſes the *Attick*

[b] Iliad. 4. [c] Pollux lib. 2. ἡ δὲ ἀπὸ μέσου δακτύλου τῶν λιχανῶν ἀνιτείνας τὸ μέτρον λιχὰς. [d] Poll. ibid. τὸ δὲ ἀπὸ καρποῦ ἕως ἄκρων δακτύλων ἡ πᾶσα χεὶρ ὀρθόδωρον. [e] Poll. ibid. ἡ δὲ τῶν δακτύλων ἀποτείνας ἀπὸ τοῦ μεγάλου πρὸς τὸ ἔμπροσθεν, μέτρον σπιθαμή.

tick Palm equal to ours, at leaſt increaſing of it by leſs than $\frac{1}{100}$ part, will make the weight of water of an *Attick* cubical Palm about 7000 Grains, the weight of the Ancient *Mina*. The *Greek* Foot of 1,0104 will make the cubical Palm 7012 Grains. The Palm by the meaſure in the Tables makes it 6990. The *Averdupois* pound according to my meaſure is 6994, which differs only by 4 Grains, and conſequently comes nearer to the *Averdupois* pound or ancient *Attick Mina*, which is juſtly ſuppos'd to be a cubical palm of water.

Some of the unuſual ſtatures of men according to the Ancients are as follows.

Plin. lib. 7. *c.* 2. tells of *Pygmies* 3 *Spithamæ* high, that is 2 Feet 2 Inches.

The ſame Author ſaith that there were many *Indians* above five Cubits high, or above 7 Feet 3 Inches. *Herodot. lib.* 9. and *Arrianus lib.* 5. talk of men of the ſame height.

Julius Capitolinus ſaith that the Emperor *Maximinus* was near 8 $\frac{1}{2}$ *Roman* Feet high, that is near 8 Feet, 2 $\frac{1}{2}$ Inches *Engliſh*. *Eraſm. Chil.* 1. *c.* 21.

Herodot. lib. 7. ſaith that *Artachæas* a *Perſian* wanted only 4 Inches of being 5 Royal Cubits high, that is 8 Feet, 5 Inches. A Royal Cubit according to the ſame Author exceeds the *Babyloniſh* by 3 Inches: which therefore I ſuppoſe equal to 21 Inches. *Goliath* the *Philiſtin* was 6 $\frac{1}{4}$ Cubits high, that is 12 Feet 4 Inches, reckoning *Jewiſh* Cubits.

Joſephus lib. 18. *cap.* 8. ἀρχαιολ. ſaith *Artabanus* made a preſent of a *Jew* to *Tiberius*, whoſe height was ſeven Cubits, or 12 Feet 9 Inches.

Plin. lib. 7. *c.* 16. ſaith that *Oreſtes* was ſeven Cubits high, or 10 Feet 7 Inches, *viz. Greek* Cubits. *Pliny lib.* 7. *c.* 2. ſaith that the *Syrbotæ* a people of *Æthiopia* were above 8 Cubits high, that is above 11 Feet 7 Inches.

The Bed of *Og* King of *Baſan* was 9 Cubits long, that is 16 Feet 5 Inches, and 4 broad, that is 7 Feet 3 Inches. *Deut. Chap.* 3.

Suidas

Suidas ſaith that King *Ganges* was 10 Cubits high, or 15 Feet 1 Inch.

Homer Odyſ. λ. ſaith that *Otus* and *Ephialtes* were 9 Cubits broad, and 36 Cubits high.

From πῦς are derived ποδαῖος, δισποδαῖος, τριπόδης, that is 1, 2, 3 Foot long. They uſed ἡμιπόδιον half a Foot, with the compounds of it, τριημιπόδιον, πενθημιπόδιον, to ſignify 3 half Feet, or 1 ½ Feet, and 5 half Feet or 2 ½ Feet. *Solon* fix'd boundaries of people's grounds by the following meaſures; a hedge or a wall was to be diſtant one Foot from your neighbour's ground; a houſe two Feet; a Sepulcher or a Ditch as much ſpace as they were deep; an Olive and a Fig-tree nine Feet, and all other Trees five. This was copied in the Laws of the XII Tables with very little alteration.

The walls of *Nima*, or *Nineveh* were 100 Foot high, and the Towers 200.

[f] Πῆχυς a Cubit contains one Foot and a half. *Heſychius* ἑξαπάλαιστος according to *Herodotus*, or of 6 Palms, which give the ſame proportion. The print of *Hercules*'s foot was δίπηχυ or two Cubits long, in *Engliſh* meaſure about 2 Foot 3 Inches. This was to be ſeen, as *Herodotus* ſaith, in a rock in *Scythia*.

[g] Πυγὼν was the meaſure from the Elbow to the ſecond joint of the Fingers, or a Cubit with the fingers inflected: it was a fifth part ſhorter than the Cubit, and conſiſted only of 20 digits. *Xenophon* and *Herodotus* make uſe of this meaſure.

[h] Πυγμὴ was the meaſure from the Elbow with the Fingers quite claſpt, and conſiſted of 18 digits. *Euſtathius* tells you, the *Pygmies* have their name from this meaſure.

[i] Ὀργυιὰ from ὀρέγειν to extend, according to *Herodotus*, it is τετράπηχυς or four Cubits, and ἑξάποδης or ſix Feet. According to *Columella* it is 6 *Greek* Feet. *Pliny* expreſſes it by *Ulna*, as may

[f] Pollux lib. 2. ἀπὸ τῶν ἀγκώνων πρὸς τὸ τῆς μέσης δακτύλου ἄκρον, τὸ διάστημα, πῆχυς.

[g] Pollux ibid. εἰ δὲ συγκάμψειας τοὺς δακτύλους ἀπὸ ἀγκῶνος ἐπ' αὐτούς, πυγὼν τὸ μέτρον.

[h] Pollux ibid. εἰ δὲ συγκλείσειας (τοὺς δακτύλους) πυγμή. [i] εἰ δὲ ἄμφω τὰς χεῖρας ἐκτείνας ὡς καὶ τὸ στέρνον αὐταῖς συμμετρεῖν, ὀργυιὰ μὲν τόσον.

may be ſeen in the chapter of *Roman* meaſures. He tranſlates πυραμὶς τεσσαρακονλόργυιος, *pyramis quadragenarum ulnarum.*

The Pillars of the *Cyzicenian* Temple were in circumference four *Ulnæ* or Οργυιαὶ, and 50 Cubits high, all of one Stone.

The Circumference of the Pillars of *Herod*'s Temple was 3 ὀργυιαί.

Strabo tells you of vines in *Margiana*, in circumference at the root, of the ὀργυιαὶ of two men.

Heſychius mentions γυίη a meaſure equal to the ὀργυιὰ.

Πλέθρον or πέλεθρον is a meaſure of 100 Foot according to *Suidas*, ἔχει πόδας ρ'. In the *Epitome* of *Strabo*, it is reckon'd ἑκτημόριον τῦ σταδίυ, the 6th part of a *Stadium*.

From πλέθρον comes πλεθριαῖος, an adjective ſignifying a hundred feet long; as in *Herodotus*, φοίνικας πλεθριαίυς Palm Trees 100 feet long, which he ſaith grew in *Babylon*. And *Strabo* mentions a *Dragon* about that length.

Πλέθρον alſo ſignifies a *Jugerum* or *Roman* Acre. *Heſychius* ſaith, μέτρον γῆς, ὅ ἐστι πλέθρον, *i. e.* a meaſure of land. *Plutarch* in the life of *Camillus* calls πλέθρον, what *Livy* calls *Jugerum*. So *Laurentius Valla* tranſlates it from *Herodotus*.

Ἄρουρα, according to *Suidas*, is a meaſure of 50 Feet. And it ſignifies likewiſe a field, or manured ground.

Στάδιος, according to *Herodotus*, *lib.* 2. is a meaſure equal to 100 ὀργυιαὶ, or of 600 *Grecian* Feet. The ſame Author ſaith it is 400 Cubits, which is the ſame thing. From στάδιος comes σταδιαῖος, in *Strabo* πυραμίδες τὸ ὕψος σταδιαῖοι, ſignify *Pyramids* of the height of a *Stadium*, or 600 Feet.

The City *Nina*, which in the Scripture is called *Nineveh*, was in Circumference 480 *Stadia*, according to *Diodorus Siculus*: which comes near to 55 *Engliſh* Miles, reckoning 600 *Grecian* Feet to a *Stadium*. The ſame was the circumference of *Babylon*. *Strabo lib.* 16. ſaith that *Belus*'s Sepulcher was a *Stadium* in height, and in other every dimenſion; which if true, it far exceeded the greateſt of the *Ægyptian Pyramids*.

Στάδιον by the ancient *Greeks* was called αὐλὸς, from whence came δίαυλος, a ſpace of two *Stadia*.

Ἱππικὸν στάδιον is reckon'd 4 *Stadia* by *Plutarch* in the life of *Solon*. And *Heſychius* ſaith, ἱππικὸς δρόμος τετραστάδιός τις. *i. e.* a horſe's courſe of four *Stadia*.

Μίλιον a Mile, was taken from the *Latin Mille*. It contain'd 8 *Stadia*. *Suidas* ſaith, τὰ δεκαμίλια ἔχουσι στάδια π'. *h. e.* 10 Miles has 80 *Stadia*. Some reckon'd it more than 8 *Stadia*.

Jewiſh *Meaſures of Length*, &c.

THE *Jewiſh* Meaſures of Length for the firſt period are ſomewhat uncertain, and in a matter ſo obſcure, one muſt follow common opinions. The Cubit in the Tables formerly publiſhed is that of Dr. *Cumberland* late Biſhop of *Peterborough*, who himſelf follows that of *Rabbi Godoliah*. This *Rabbi*, as the learned Dr. *Hooper* ſaith, is ſuppoſed to ſpeak the mind of *Maimonides*, one of the moſt knowing and learned of their Writers.

Accordingly I have ſtated the meaſure of the *Jewiſh* Cubit or *Ammah* to be 21,888 Inches *Engliſh*; which is the length of the preſent *Cairo* Cubit. This depends on the proof of two Propoſitions; Firſt, that the preſent Cubit of *Ægypt* is the ſame with the ancient. Secondly, that the *Jewiſh* Cubit was the ſame with the ancient *Ægyptian* Cubit; the proofs of which, according to Biſhop *Cumberland*, are as follow.

That the inhabitants of *Ægypt* have always made uſe of the ſame Cubit, is inferr'd from the following reaſons. Firſt, That there is no intimation in hiſtory of any ſuch change of their meaſure. Secondly, that the *Nilometrion* or *Column* divided into *Ægyptian* Cubits to meaſure the increaſe of the height of the *Nile*, is ſuppoſed by moſt Authors to have continued the ſame, ever ſince *Joſeph*'s Regency. That a certain height of 16 Cubits (according to *Herodotus* and other writers) was neceſſary to produce the common

mon fertility of the Soil, and by this the people judg'd of the future Crop. For ſuch a natural reaſon the government would not, and the people neither would nor could, change the Standard meaſure.

Secondly, The *Nile* by its annual overflowing ſometimes confounding the boundaries of people's properties, it was neceſſary to have a ſtated Meaſure of length to ſet them out again. Of this Biſhop *Cumberland* gives an Example in the land aſſign'd to the *Militia*, as follows.

" The ſtrength of this reaſon may be underſtood more clearly " by help of an Example in *Herodotus* his *Euterpe*. There he tells " that in *Ægypt* their ſettled *Militia* conſiſted of theſe two ſorts " of Soldiers, who were eſteemed above all Tradeſmen, the *Her-* " *motybiæ*, and the *Calaſiries*. The full number of the later of " theſe was 250000 Men, who in courſes were their King's " Guards, and every one of them had to maintain him and his " family Land, (free from Taxes) whoſe *Area*, or ſuperficial con- " tent, was 12 *Arouræ*, each *Aroura* being 100 Cubits on " every Side; which imports that it was the Square of 100 Cu- " bits. Wherefore to know how much land this was in our mea- " ſure, I took the *Cairo* Cubit an hundred times, which is 182,4 " in our foot meaſure, as may be inferr'd from Mr. *Greaves* his " Table: and by ſquaring this number, I find an *Aroura* to be " 33269,76 ſquare Feet. Which is conſiderably leſs than one " *Engliſh* Acre, for that contains 43560 ſquare Feet. Hence it " will follow that 12 *Arouræ* will amount to 399237,12 ſquare " Feet. And this divided by the feet of an *Engliſh* Acre, will " quote 9,165. which demonſtrates that the Land of each *Calaſi-* " *ry* amounted to 9 *Engliſh* Acres, and 165 *Milleſimals* of an A- " cre, or 1 tenth of an Acre, 6 *Cents*, &c. above the 9 entire " Acres: And it's clear, that ſo much good land lying where he " places it, might maintain any of them with his Family very well.

A Cubit ſhorter than the Standard, men of their character would not bear; a longer muſt either make a Mutiny among themſelves,

viz. amongſt thoſe who were laſt ſerved; or a Sedition among the people.

This is a plauſible argument; however it is not to be imagin'd that after every overflow of the *Nile*, there was always a menſuration, but ſuch a thing might be neceſſary ſometimes.

Thirdly, The Nation who conquer'd *Ægypt*, could not have introduced their meaſures; for the *Babylonian* Cubit of 5 Palms is much ſhorter, and ſo is the *Roman* and *Greek*; and the *Turkiſh* Pike, which is deriv'd from πηχὺς, is much longer than this *Cairo* Cubit.

Another preſumption ariſes from the Dimenſions of the greateſt *Pyramid*, which meaſur'd by this Cubit falls into round numbers, as it may be ſuppos'd an *Architect* would chuſe in ſetting out the plan of a ſtately building, rather than ſuch as end in Fractions. "The ſides of the Baſe of the great *Pyramid* are delivered, *p.* 68, "of Mr. *Greaves*'s *Pyramidographia*, to be 693 *Engliſh* Feet. For "Reduction, theſe muſt be divided by 1,824, which is his length "of the *Cairo* Cubit in our foot meaſure, the quote is 379,934, "which is ſo very little ſhort of 380 *Cairo* Cubits, that I think it "reaſonable to believe that the old *Architects* deſign'd juſt this "even number of *Ægyptian* Cubits. For if we ſuppoſe Mr. *Greaves* "to have miſſed but ,12 of a foot, which is not one Inch and "an half, in taking this long meaſure of near 700 feet, then the "Side muſt be put 693,12: this number divided 1,824, will "give preciſely 380.

"In like manner I remembred, that *Greaves*, *p.* 96, 97, gives "the length of the exterior Surface of the Tomb, contain'd in the "midſt of the greateſt *Pyramid*, to be in our foot meaſure 7,296. "This reduced into *Cairo* Cubits, by dividing by 1,842, gives "juſt four ſuch Cubits.

I cannot admit of this Argument of the Biſhop's, at leaſt of the inference which he draws from it. For a ſhorter Cubit will bring out the dimenſions of the great *Pyramid* and its parts in round numbers, with better analogy than the Cubit of 21,888 Inches.

He finds the ſide of the Baſe to conſiſt of 380 ſuch Cubits, and that of a Tombſtone of four, nearly. Mr. *Greaves* has given the dimenſions of ſo many parts of the *Pyramid*, that any Cubit whatſoever would probably anſwer to one or two of them nearly in Integers. So the Strength of the Biſhop's argument depends chiefly on 380 being a remarkable number, ſuch as an *Architect* would chuſe for the dimenſion of the Principal part of his *Fabrick*. But why it ſhould be thought ſo remarkable for its Square 144400, does not appear, or even ſo fit for the Side of the *Pyramid*, is not ſo obvious, ſince it conſiſts of 300 and 80 over. I will ſuppoſe rather that the *Architect* chooſe 400 Cubits for the Side of the Baſe; this is properly a round number, and the Cubit from thence deduced will be found to agree better with the other Dimenſions than the preſent *Cairo* Cubit.

Divide 693 the number of feet by 400, the quotient will give the ancient *Ægyptian* Cubit equal to 1,7325 Feet: which is ſhorter than the Biſhop's: and is compared as follows with ſome of the moſt remarkable dimenſions. Mr. *Greaves* mentions three Square holes, each in breadth exactly 3,463 Feet: this number divided by the Cubit 1,7325 quotes 1,9988, this differs only 12 ten thouſandth parts from 2, which therefore I ſuppoſe was the number of Cubits deſign'd. Now dividing that number 3,463 by the Biſhop's Cubit 1,824, the quotient 1,898 differs above 1 tenth from 2.

The Breadth of a Gallery in the *Pyramid* is 6,87 Feet, which divided by 1,7325 gives 3,96, which differs from 2 but by 4 hundredth parts: but being divided by 1,824 gives 3,76, which differs 24 hundredth parts from 4 Cubits.

The Breadth of two Banks of poliſh'd ſtone is 1,717 Feet. The difference of this from 1,7325 is about 15 thouſandth parts, but difference from 1,824 is one tenth of a Foot.

The Breadth of a Way between thoſe banks is 3,436, which differs from the double of 1,7325, or 3,465 by 3 hundredth parts

of

of a Foot; it's difference from the *Cairo* Cubit doubled is above ſix times as much.

Mr. *Greaves* tells us the length of a Marble Chamber is 34,38 Feet, and its breadth the half of that: which anſwer to 20 and 10 Cubits: ſuppoſing the Cubit 1,7325.

Theſe Meaſures agree as well with this Cubit as our own Meaſures now-a-days in buildings agree with our Foot.

According to this ſuppoſition the old *Ægyptian* Cubit is equal to 1,7325 Feet *Engliſh*, or 20,79 Inches. And that this was the Cubit then in uſe among the *Ægyptians* when the great *Pyramid* was built, ſeems to be pretty plain from what has been ſaid above. It is to the preſent *Cairo* Cubit as 19 to 20.

According to the *Iſagoge* of *Heron*, the Royal *Ægyptian* or the *Phileteræan* Foot was to the *Roman* Foot in the proportion of 6 to 5; and therefore the Cubit was in the ſame proportion to the *Roman*, or equal to 20,8872 Inches, which differs from that found by the *Pyramid* leſs than $\frac{1}{10}$ of an Inch. This is a great confirmation of the meaſure of the Cubit drawn from the *Pyramid* as above. But Biſhop *Cumberland* being an Author on this Subject of great Eſteem, I have ſet down Tables calculated according to his Hypotheſis. At the ſame time I chuſe rather to recommend the other from the *Ægyptian* Cubit of 20,79 Inches *Engliſh*, computed in Decimals.

The ſecond Propoſition, that the *Jews* uſed the *Ægyptian* Meaſures, ſeems, if not evident, at leaſt extremely probable for theſe reaſons.

They had been in that Country in a ſtate of Slavery for about 200 years, and conſequently in all appearance had no Meaſures of their own. *Moſes* when he ſpeaks to them of Meaſures, to be ſure talks in a Style that was intelligible. When he ſpeaks for example of an *Ephah*, he preſumes they knew what Meaſure he meant. That he himſelf was skilled in *Weights* and *Meaſures*, *Arithmetick* and *Geometry*, there is no reaſon to doubt: beſides, thoſe of the *Ægyptians* were adjuſted by the Authority of their firſt King

Mizraim,

Mizraim, who receiv'd them from his Predeceſſors *Ham* and *Noah*, from whom *Abraham*'s family had them likewiſe. From *Noah* to *Joſeph*'s promotion there were but 283 years: and *Joſeph* in his Regency is ſuppoſed to have ſet up the *Nilometrion*, which is divided into Cubits of Meaſure abovementioned.

It is probable the Meaſures as well as the Weights continued the ſame. But the word *Shekel* is uſed in this Period indifferently, which if it had ſignified different Weights, muſt have been equivocal.

The Diviſion of the *Jewiſh* Cubit into 6 Palms after the manner of the *Ægyptians*, is another probable argument of the identity of thoſe Meaſures. And as for different Cubits, the Biſhop thinks there ſeems to be no foundation for them in Scripture; where there is a different Cubit mention'd, it is ſpecified, as the bed of *Og* is meaſur'd by the Cubit of a Man, not the Standard Cubit.

The other two places that intimate ſome difference of Cubits, are in *Ezek.* xl. 5. and xliii. 13. "Now he writing while he "he was a Captive in *Babylonia*, muſt be thought to have obſer- "ved that Meaſure differing from the *Jewiſh* Standard, was there "often uſed, even by the *Jews* alſo, who muſt uſe the Meaſures "allowed in the Kingdom where they live; and therefore being "to give them the Meaſures of the future Temple, he was obli- "ged to intimate that the Cubits whereby they were expreſſed, "were not ſuch as in this foreign Kingdom they often uſed, but "longer by one hand's breadth.

Another Argument is, that the Eaſtern people determin'd their Digit, and conſequently their Hand-breadth, by the Breadth of Barley Corns, 6 making a Digit, and 24 a Hand's-breadth: ſix ſuch Grains will make 912_{c} of an Inch at a middle rate, a ſmall matter over or under, which according to the ſtated proportion will produce the Cubit above-mentioned $21_{c}888$ Inches. The *Greeks* and *Romans* fall ſhort of this Meaſure, by fixing that of their Cubit and Foot firſt, and then ſubdividing it.

In *Ezek.* xliii. 13. parallel to xl. 5. the dimenſions of an Altar are deſcribed by a Cubit an Hand-breadth longer than that of the *Babylonians*, where they were Captives, from whence it follows that a Hand-breadth was a known Meaſure. Secondly, this was to lead them to their own Meaſure, which was bigger than the *Babylonian*, conſiſting of 5 Palms, whereas the *Jewiſh* conſiſted of 6.

To prove this, the Biſhop quotes a paſſage from *Miſne Chilaim cap.* 17. cited by *Arias Montanus*, who ſays that there were two Standard Cubits kept at *Suſan*, one of 5 Cubits, the other of 6. *Herodotus* in his *Clio*, deſcribing the height of the walls of *Babylon*, makes the ſame diſtinction between two ſorts of Cubits, he ſaith they were 200 Cubits high, Royal Cubits were 3 Finger's Breadth (δάκτυλοι perhaps Inches) longer than the common Cubit.

By comparing the Meaſure of the outward Wall of the Temple in *Joſephus* with the *Jewiſh Stadium* of 400 Cubits, and that of the *Talmudiſts* by the *Roman* Meaſure of 500 Cubits; *Jacobus Capellus* infers, that the *Jewiſh* Cubit was to the *Roman* as 5 to 4.

On the other hand, it is own'd that *Joſephus* ſuppoſes the *Jewiſh* Cubit equal to the *Attick*, and differs from the *Rabbins* in this particular as in the value of their Coins. *Abulfed* an Eaſtern Prince, King of *Hamath*, a City and Territory near *Judæa*, and exceeding curious in Weights and Meaſures, affirms (as quoted by *Kircher*) that the *Jewiſh* legal Cubit was equal to the *Ægyptian* of 24 Digits.

Rabbi Gedaliah compares the *Jewiſh* Cubit with the *Bolognian* Ell, from whoſe very unaccurate calculation the Biſhop makes the length of the *Jewiſh* Cubit to be 21,735 Inches, differing from his not much above $\frac{1}{10}$ of an Inch.

Another argument is drawn from Conveniency. According to this Meaſure the height of the Table of *Shew-bread*, *viz.* 1 $\frac{1}{2}$ Cubit, will be 32,832 Inches. According to the old *Roman* Cubit, it's height will be only 26,109 Inches; too low for a Table.

The

The capacity of the *Ark* according to a Cubit of 18 Inches will be little more than half of what it is by this Cubit of 21,888 Inches.

Theſe Arguments of Biſhop *Cumberland*, for the *Jews* having had only one Cubit, and that of 21,888 Inches I ſubmit to the Reader; but to me it ſeems plain, that they us'd two ſorts of Cubits, the ſacred one, and the profane or common one. For (*Deut.* iii. 11.) the Bed of *Og* is ſaid to have been 9 Cubits long and 4 Cubits broad, after the Cubit of a Man. And (*Ezek.* xl. 5.) *Ezekiel's* Reed is ſaid to be 6 Cubits long, by the Cubit and Hand breadth. From whence it appears that the larger Cubit by which the Reed was meaſur'd, was longer than the common one, by a Hand-breadth or 3 Inches. Agreeably to this, *Herodotus*, ſpeaking of the walls of *Babylon*, ſaith they were 50 Royal Cubits broad, and 200 high; and then he adds that the Royal Cubit was longer than the ordinary one by 3 δακτύλους, which being underſtood of Inches, this account of the Royal *Babyloniſh* Cubit agrees with that of the ſacred one in *Ezekiel*.

It's agreed by all Authors that the common Cubit was 6 Hand-breadths or 18 Inches, conſequently the ſacred one was 7 Hand-breadths or 21 Inches. Accordingly we find the great Cubit deduced from the *Pyramid*, differing from 21 *Engliſh* Inches only by 21 Hundred parts of an Inch. And if it's 7th part be ſubſtracted from it, that is, 2,97 from 20,79, there will remain 17,82 Inches equal to the profane Cubit; and differing from ours of 18 Inches by 12 hundred parts of an Inch. And it is undoubtedly this ſhorter Cubit of the *Jews* which *Joſephus* makes equal to the *Grecian*, the difference being but $\frac{1}{12}$ of an Inch. In the Decimal Table the ſubdiviſions of the Cubit, *viz.* the Span, the Palm and Digit are deduced according to the known proportions from the ſhorter Cubit 17,82 Inches, and the greater Meaſures are reckon'd according to the ſacred one: altho' it is uncertain whether the ſacred or the profane were moſt commonly us'd among the *Jews*. Beſides the *Ammah* or Cubit, the *Hebrews* had two other Meaſures taken from

the parts of a human body. *Tophach*, the 6th of a Cubit: [a] which is interpreted by the LXX always a Palm.

[b] *Zereth*, half a Cubit, which the LXX render σπιθαμὴ a Span. *Joſephus* puts 2 σπιθαμὴ or Spans for one Cubit.

The Stature of *Goliath* was 6 *Emoth* and a *Zereth*, the LXX render it ἑξ πήχεων ἢ σπιθαμῆς, that is 6 Cubits and a Span, according to *Engliſh* Meaſure 11 Feet 10 Inches.

[c] There is likewiſe another word *Gomed*, which the LXX render σπιθαμὴ.

[d] *Kaneh*, from whence perhaps the *Latin* word *Canna*, is tranſlated by the LXX κάλαμος, a meaſuring Rod, ſuppoſed to be of 6 Cubits long.

[e] *Pathil* and [e] *Chebel*, it is tranſlated by the LXX σχοινίον γεωμετρικὸν, *Schœnus*, a meaſuring line, ſuppoſed to be of 80 Cubits.

[f] Their Mile they had from the *Romans*. *Berath* is commonly interpreted a Mile.

[g] The *Paraſang* is a *Perſian* Meaſure conſiſting of 30 *Stadia*.

Their *Sabbath* Day's journey, ſuppos'd to be equal to the Space between the *Ark* of the Covenant and the camp of the *Iſraelites*, 2000 Cubits; ſo long a journey was allowed to thoſe that went to worſhip. *Origin* makes it amount to 3000 Cubits.

A day's journey is an uncertain Meaſure among all the Ancients, ſometimes of 20 *Italian* Miles, as in the Civil Law *de excuſatione tutelæ*. It is reckon'd by *Herodotus* 200 *Stadia*, or near 19 Miles.

The ſame Author ſpeaking of the manſions of the *Perſian* Monarchs, ſaith they travell'd 150 *Stadia* a day, that is about 17 Miles. There are [h] inſtances of very long days journeys. *Julius Cæſar* uſed to travel commonly 100 *Roman* Miles in a day.

[i] *Curio* travell'd with *Cæſar*'s letters 3300 *Stadia* in three Days, that is 377 Miles *Engliſh*.

There

[a] Pſalm. 39. 1 Kings 7. Ezek. 40, 43.
[b] Exod. 28, 39. 1 Sam. 17. Ezek. 43. Iſaiah 40.
[c] Judges 3. [d] Ezek. 40. [e] Zachar. 2.
[f] Geneſ. 35, 47. & 48. [g] Herodot. lib. 6.
[h] Suet. in Cæſare. Centena paſſuum millia ſingulos dies Rheda meritoria expeditus conficere ſolitus eſt. [i] Appianus lib. 2. Bellor. Civil.

There are ſeveral long Days Journeys mention'd by *Pliny*, as Prodigies of quick travelling. [k] As of *Aniſtis* a *Lacedæmonian* Runner, and *Philonides* one of *Alexander*'s, who ran 1200 *Stadia* from *Sicyon* to *Elis* in one day, that is 137 Miles.

[l] *Tiberius Nero* travelled with 3 Chaiſes in one day and one night a journey of 200 Miles, to ſee his brother when he was ſick.

[m] The Ancients us'd Caleches, the figures of ſeveral of them are to be ſeen on ancient monuments. They are very ſimple, light, and drove by the Traveller himſelf.

The day's ſailing of a Ship aſſign'd by [n] *Herodotus* is 700 *Stadia*, *i. e.* 84 ½ *Engliſh* Miles. And for the Night 500, or 70 ½ Miles making in 24 hours 155 *Engliſh* Miles; ſeems too long.

The voyage of *Solomon*'s Fleet, which was ſent to *Tharſis* for Gold, was Triennial, from which inſtances it ſeems their Merchant Ships were ſlow Sailors; and indeed they were of a moſt inconvenient figure for it, being round or oval.

Now we are upon the ſubject of travelling, it may not be improper to ſay ſomething of their Highways and Bridges; and to apply the Tables in ſome particulars of that kind.

Their Highways, for their extent, ſolidity or expenſiveneſs, are ſome of the greateſt monuments of the grandeur of their Empire. Their Center was the firſt ſtone or the *Milliare Aureum* in the middle of *Rome*, from whence they branch'd themſelves out to the utmoſt limits of the Empire. The *Appian* way about 2000 years old continues in many places entire for ſeveral miles near *Fonde*; which is not to be wonder'd at, conſidering the manner of the workmanſhip. *Montfaucon* tells you that he obſerv'd part of it where the ſtones above were removed between *Velletri* and *Sermonetta*; which gave him an opportunity to conſider the manner of the ſtructure; the foundation was made of rough ſtone join'd together with a moſt firm Cement: upon this there was laid another layer,

k Plin. lib. 7. cap. 20. Donec Aniſtis curſor Lacedæmonius, & Philonides Alexandri M. a Sicyone Elin uno die MCC. ſtadia cucurrerunt.

l Tiberium Neronem nocte ac die longiſſimum iter tribus vehiculis emenſum, feſtinantem ad Druſum fratrem ægrotantem in Germania.

m Vide Montfaucon Tom. 4.

n Lib. 4.

conſiſting of ſmall ſtones and Cement, to plane as it were the inequalities of the lower *Stratum* or rough ſtone, in which the ſtones of the upper pavement were fixt. This was an excellent contrivance, for there can be no very durable pavement but a double one. The thickneſs of the whole ſtructure was about 3 *Pariſian* Feet, or 3 Feet 2 ½ Inches *Engliſh*.

In ſome places their highways had borders for foot paſſengers about 2 Foot wide, and 1 ½ Foot high. They were ſo rais'd, perhaps for the conveniency of people diſmounted to get on horſeback, which was ſometimes neceſſary before the uſe of ſtirrups. The breadth of ſuch a way was between the borders about 14 Feet, a ſpace ſufficient to let two Chariots paſs; the concourſe of many of them at a time not being ſo common in theſe Days. Such was the ſtructure of the ways of *Italy*. In other Countries, as particularly in that part of *Gallia* called *Belgica*, they were larger, and made after the following manner. There was a Ditch drawn between two parallel Furrows, which was filled with ſome ſound materials, and ramm'd to make the foundation ſolid, and rais'd ſo high in marſhy places that the waters could never cover them, ſometimes to the height of 20 Feet. The ways were made of ſeveral layers of flat ſtones and flint cemented ſo ſtrongly, that Ages have not been able to break or disjoint them. The conſtruction was a little various, according to the nature of the Soil or the Materials which they found.

There were likewiſe Inns built at proper diſtances to receive Travellers. I could not forbear mentioning theſe particulars, tho' not directly relating to the ſubject. It is one of the greateſt concerns of Government to make their people eaſy and ſecure upon the roads, and this is ſtill more neceſſary in a trading Nation. And the expence that is laid out in ſtrength and ſolidity is frugality.

The *Roman* Bridges were no leſs wonderful than their highways. Some of them have been repair'd and are yet ſtanding; and the remains of the others ſhew the magnificence of their ſtructure: for example,

example, that of *Narni* between *Loretto* and *Rome*, ſuppos'd to be built by *Auguſtus*. It joins two mountains, between which the *Narni* runs. The Bridge conſiſting of four arches, is of the length of 636 modern *Roman* Feet, or 583 *Pariſian*, that is 622 ½ *Engliſh*. The dimenſions of the arches are as follows, in *Engliſh* Meaſure. The height of the firſt Arch 109 Feet, the diſtance between the Piers 72 ½ Feet. In the ſecond Arch the diſtance of the Piers is 130 Feet. In the third their diſtance is 109 Feet. In the fourth the diſtance is 138 Feet.

The deſcription of *Trajan*'s Bridge over the *Danube* does not anſwer the figure of it upon his Pillar, if it be the ſame. According to *Dio* this Bridge had 20 Piers of ſquare ſtone, 150 Feet high above the foundation, and 60 Feet broad, diſtant and joined with Arches of 170 Feet; and what makes the work the more wonderful, is the owzy bottom, and the impetuous ſtream of the River, becauſe of the comparative narrowneſs of it in that place; beſides there was no other channel could be cut to divert the River till the Bridge was built.

A deſcription of a very wonderful Bridge of *Julius Cæſar*'s over the *Rhine* is to be ſeen in his own Commentaries, but Architects differ widely in the figures which they have given from that deſcription.

Pons Vardi, commonly called *Pont du Gard*, three Leagues from *Niſms*, is another inſtance of the *Roman* elegance and magnificence; it conſiſts of three orders of Arches: the inferior Piers are continued upward, and ſupport the others, leaving a free paſſage for Travellers. The inferior Arches are ſix, the ſecond Row eleven, the higheſt being but ſmall, are 35. This height was neceſſary, becauſe the Bridge ſerves likewiſe for an Aqueduct. The lower Row of Arches takes up the ſpace of 438 feet, the ſecond of 746, and the third 805. The whole height of the Bridge is 182 Feet. It is built of ſtones compacted together with Iron.

The Bridge of the old *Brioud* in *Auvergne*, mention'd by *Montfaucon*, conſiſts only of one Arch, which from one Piere to the other

other is 195 Feet: from the top of the Bridge to the water are 84 Feet.

The Bridge of *Alcantara* in *Spain* upon the *Tagus*, built in the reign of the Emperor *Trajan*, is in length 670 Feet, conſiſting of 6 Arches of the breadth of 84 Feet. The Piers are ſquare, about 28 Feet wide. The Bridge is 28 Feet broad, and 200 Feet high.

They had likewiſe the art of making Bridges of Boats. But this by the way.

But to return to our Subject, *viz.* Meaſures of diſtances or lines, of which Time may be reckon'd one. Amongſt the *Romans* when the *hora* was called the *integer*, it was divided into 12 parts like the *As*. A Reader not attending to this, would find it very hard to explain the following paſſages in *Pliny lib. 2. cap.* 14. *Lunam ſemper averſis a ſole cornibus, ſi creſcat, ortus ſpectare: ſi minuatur, occaſus, haud dubium eſt. Lucere dodrantes ſemuncias horarum ab ſecunda adjicientem uſque ad plenum orbem, detrahentemque in diminutionem. Intra quatuordecem autem partes ſemper occultam eſſe.*

Dodrans is $\frac{3}{4}$ of an hour, *Semiuncia* is $\frac{1}{24}$ part, both together make $\frac{19}{24}$ of an hour: and the ſenſe is, that the Moon when ſhe begins to appear after the *Novilunium*, ſhines $\frac{19}{24}$ of an hour, and proceeds adding ſtill every night the ſame quantity of time for the duration of her ſhining to the full Moon, and then the time of her light decreaſes in the ſame proportion.

Plin. lib. 8. *cap.* 32. ſpeaking of the Moon, *In coitu vero quod Interlunium vocant, cum apparere deſierit, ſupra Terram autem erit quam diu & Sol, interlunio & prima tota die, ſecunda horæ noctis unius dextante Sicilico: ac deinde tertia uſque ad quintam decimam, multiplicatis horarum iiſdem portionibus: quintâ decimâ tota ſupra Terras noctu erit, eademque ſub terris tota die; decima ſexta ad primæ horæ nocturnæ ſextantem Sicilicum ſub terra agit, ejuſdemque portiones horarum per ſingulos dies adjicit uſque ad interlunium, & quantum primis partibus noctis detraxerit quod ſub terris agat, tantundem noviſſimis ex die adjiciet ſuper terram.*

Which paſſage is eaſily underſtood, when the Reader remembers that the *dextans horæ* is 10 Ounces, or $\frac{5}{6}$ of an hour: and that a *Sicilicus* $\frac{1}{2}$ of an Ounce or $\frac{1}{12}$ of an Hour. So that the whole time makes $\frac{11}{12}$ of an Hour. This is the ſenſe of theſe paſſages, without entering into the *Aſtronomy* of them.

The *Romans* divided their natural day into the following parts.

The firſt they called *Mediæ noctis inclinatio.*

Second, *Gallicinium*, or Cock-crow.

Third, *Conticinium*, or when the Cocks left off crowing.

Fourth, *Diluculum*, or Day-break.

Fifth, *Mane*, when it grew clear,

Sixth, From the Morning to Noon.

Seventh, *Tempus occiduum*, or Afternoon, which is ſometimes called *ſuprema tempeſtas*, which ended at Sun-ſetting.

Eighth, *Veſpera*, ſo called from *Heſperus* the Evening-ſtar.

Ninth, *prima fax*,

Tenth, *Concubia.*

Eleventh, *Intempeſta*, becauſe it was a time unfit for buſineſs.

The Ancients likewiſe divided their night into four parts, called φυλακαὶ, *vigiliæ*, Watches, often mention'd in the new *Teſtament*. In the *Roman* Camps they were called *Vigiliæ Caſtrenſes*; they muſt have been unequal, according to the inequality of the Nights.

CHAP.

CHAP. IX.

Of Meaſures of Capacity.

ROMAN.

THE *Romans* have given the proportions of their Meaſures of Length, Meaſures of Capacity, and Weights, ſo exactly, that one being given it is eaſy to determine the other two. Thus from the *Pes* being known, the *Congius* is determin'd, becauſe the *Amphora*, which contain'd 8 *Congii*, was the Cube of a *Pes* or Foot. The *Congius* it ſelf the Cube of half a Foot. So that it is plain the quantity of the *Amphora* or *Congius* being given, that of the Root or Side muſt be ſo likewiſe. The weight of Rain-water contain'd in a *Congius* was 10 *Roman* pounds, and that of the *Amphora* 80: ſo that from the Meaſure of the *Congius* or *Amphora*, the quantity of their Pound, Ounce or *Denarius* is likewiſe known. But it happens from the want of accurateneſs in experiments, or perhaps even in the firſt original framer of theſe models, that in comparing the Meaſures of Lengths and Capacity and Weights together, and aſſuming one as the Standard, the others will come out with ſome ſmall difference.

The *Pes* already ſettled is equal to 11,604 Inches, its Cube 1562,5112 gives the content of the *Amphora* in ſolid Inches; and divided by 8 gives 195,3139 Inches for that of the *Congius*.

According to the Experiment of *Villalpandus*, the *Congius* of *Veſpaſian* weighs in water 52560 Grains *Troy*. In order to reduce this to ſolid Inches, it's known by experiment that a Cubical *Engliſh* Foot of Rain-water weighs exactly 76 pounds *Troy*: or reducing the foot to Inches, and the Pound to Grains, 1728 ſolid Inches weigh

76

× 195,3139. Langwith.

76x5760 Grains, which numbers being divided by their common Diviſor 576, it appears that 3 ſolid Inches of Rain water weigh 760 Grains *Troy*. Hence the weight of the *Congius* being 52560 Grains, it's content is found by the following proportion; As 760 Grains are to 52560 Grains, ſo are 3 ſolid Inches to 207,4737 the content of the *Congius* in ſolid Inches: which exceeds that deduced from the *Pes* by 12,1598; and would make the Foot 11,84 Inches, differing from that in the Tables near one fifth of an Inch, which make a great difference in the Cubes.[x] But as the learned Biſhop, ſo often quoted, obſerves, the *Romans* in all appearance began their concave Meaſure not from any length before eſtabliſh'd; but rather from the Weight of the contain'd liquor, by which thoſe veſſels are alſo deſcrib'd. For had they primarily erected the Cube of a Foot for their principal Concave, and then Geometrically taken its Suboctave the *Congius*, from the Cube of half a Foot; they would not have fail'd to proceed lower in like manner, and to divide the *Congius* into 8 parts inſtead of Six; each of which leſſer Meaſures, would have been regularly the Cube of a quarter Foot, their well known Palm. This is the courſe that has been taken for our *Gallon*, which comes in the place of a *Congius*, and has the *Pint* for its Suboctave. This conſideration may well ſerve to prove that the Cubical relation of the *Amphora* to a Foot, and of a *Congius* to half a Foot, was incidental only, and not primarily deſigned, tho' afterwards the *Amphora* was deſcrib'd by their Authors by the length of the ſide of the Cube. As by *Rhemnius Fannius* thus,

Pes longo ſpatio latoque notetur in anglo,
Angulus ut par ſit, quèm claudit linea triplex,
Quatuor ex quadris medium cingatur inane,
Amphora ſit Cubus.

which is thus to be interpreted, *Amphora ſic formatur, ut ejus capacitas lineas quatuor habeat rectas æquales, pedem longas, quatuor angu-*

x It should be 1/4 of an inch, for it is 0,236. which falls short of 1/4 by 0,014. Langwith.

los rectos, in quorum quemque tres lineæ longa lata & alta conveniunt; efficiaturque figura Quadrata, quam Græci κύβον hoc eſt, Cubum vocant.

Therefore preſerving the Analogy of the *Congius* with the weight of the *Roman* Pound already ſettled, at 5245 ½ Grains *Troy*, which multiplied by 10 produces 52457 ½ Grains, the Weight of the *Congius*: this multiplied by 3, and divided by 760, gives 207,0676 ſolid Inches, which is the content of the *Congius* in the Tables, and differs from the capacity ariſing from *Villalpandus*'s experiment by leſs than half a ſolid Inch. Experiments of weighing water are very nice; the ſame quantity of water in the Winter weighed 474 Grains, in the Summer only 470, according to a Tryal of M. *Homberg*'s

A veſſel holding the 6th part of a *Congius*, or ⅙ of a *Roman* Pound, *i. e.* 20 Ounces, was the *Sextarius*; the half of that a *Hemina*; the quarter of 5 Ounces, a *quartarius*; and the 12th a *Cyathus*; according to the diſtribution of *Voluſius Mætianus* a celebrated Lawyer, with whom the more ancient Authors likewiſe agree. I muſt not here omit the proof of the proportions above-mention'd, which is plain from the following *plebiſcitum* of the two *Silii* printed in *Greaves*, and to be ſeen in the beſt editions of *Sextus Pompeius de ſig. verb.*

VTI. QAVDRANTAL. VINI. OCTOGINTA. PONDO SIET.
CONGIVS. VINI. DECEM. IS. SIET.
SEX SEXTARII. CONGIVS. SIENT. VINI.
DVO. DE. QVINQAGINTA. SEXTARII. QAVDRANTAL. SIENT. VINI.
SEXTARIVS. ÆQVVS. ÆQVO. CVM. LIBRARIO. SIET.

The *Congius* of *Veſpaſian* ſtill extant, is marked with the following letters P. X. which denote *Pondo Decem.*

The greateſt Meaſure among the *Romans* of liquid things was the *Culeus*, or *Culleus* containing 20 *Amphoræ*. *Rhemnius Fannius*,

Eſt & bis decies quem conficit Amphora noſtris
Culeus: hoc nulla eſt major menſura liquoris.

For *noſtris* undoubtedly it ſhould be read *noſtra*. [a] *Plin. lib.* 14. *cap.* 4. interprets ſeven *Culei* 140 *Amphoræ*. When, ſaith he, oftentimes each Acre will yield ſeven *Culei* of wine, that is 140 *Amphoræ*. A *Culeus* likewiſe contains 40 *Roman Urns*, an *Urn* being the half of the *Amphora*.

Columella lib. 3. *cap.* 3. reckons the *Culeus* of Wine at the Vineyard worth 300 *Nummi* or 75 *Denarii*, that is according to *Engliſh* rate 143 Gallons, 3 ½ Pints, for 2 *l.* 8 *s.* 5 ½ *d.* which is about a half Penny the Pint.

The *Culeus* likewiſe contain'd 160 *Congii*, or 960 *Sextarii*. We read of *Dolia Culearia* and *Seſquiculearia*. *Dolia Seſquiculearia* muſt have been very large, being about 3 ½ Hogſheads, and ſo therefore larger than our Pipes. [b] *Culeus* ſignifies ſometimes a leathern Sack.

Amphora is a *Greek* word ἀμφιφορεὺς, *Iliad.* 23. *Odyſſ.* 9. by a *Syncope* ἀμφορεὺς, it is ſo called from the two *Anſæ* or handles for carriage. It is the 20th part of the *Culeus*, as we ſaid before.

Quadrantal ſignifies the ſame thing as *Amphora*, ſo called, as *Feſtus Pompeius* ſaith, from the content of it; being the Square, as he calls it, or rather the Cube of a Foot. *Quadrantal vocabant antiqui quam ex Græco Amphoram dicunt: quod vas pedis quadrati, quadraginta octo ſextarios capit.*

Ceramium, Κεραμιον, ſignified alſo an *Amphora*, ſo called as being a Veſſel of earthen ware. *Dioſcorides lib.* 5.

[c] *Cadus* was another word for *Amphora*, us'd by *Columella*. It was ſometimes likewiſe called μετρητὴς Ἰταλικὸς, to diſtinguiſh it from

[a] Quando & poſtea ſæpe numero ſeptenos culleos ſingula jugera, hoc eſt, amphoras centenas quadragenas muſti dedere. [b] l. 43. ff. de Pignor. act. Titius pecuniam mutuam accepit a C. Seio ſub Pignore Culleorum: iſtos Culleos cum Seius in horreo haberet, miſſus ex officio annonæ, centurio culleos ad Annonam tranſtulit. [c] Si in vetuſtatem ſervare voles, cado duarum urnarum quam optimi vini Sextarium addito.

the *Atticus*. *Dioſcor. lib.* 5. *cap. de vino Scillitico.* There was a Model of the *Amphora* kept in the Capitol dedicated to *Jupiter*, called the *Amphora Capitolina*. *Rhem. Fannius*,

——— Quam ne violare liceret,
Sacravere Jovi Tarpeio in monte Quirites.

Cato de re ruſtica cap. 57. ſpeaking of the allowance of wine for a family, makes it 10 *Quadrantalia* or *Amphoræ per* man a year, that is about 71 Gallons, 8 Pints; which is above a Pint and a half a day.

Urna, ab urinando, according to *Varro, quod in aqua haurienda urinat, hoc eſt mergitur ut urinator.* It is the 40th part of the *Culeus*, and the half of the *Amphora*: *Columella lib.* 3. *cap.* 3. *Voluſius Mætianus. Columella ibid.* ſpeaks of Vineyards that yielded 600 *Urinæ* the *Jugerum*: this is at the rate of above 54½ Hogſheads to one of our Acres.

Congius was the 8th part of the *Amphora*, and 4th of the *Urna*; it held 6 *Sextarii*; which were therefore ſo called according to *Cato* and *Galen*. The *Congius* in *Engliſh* Meaſure contains 207,0676 ſolid Inches, that is 7 Pints, 4,942 ſolid Inches.

Pliny lib. 14. *cap.* 22. relates how *Tergilla* objected to *Cicero*'s ſon, that he was uſed to drink two *Congii* of Wine at a draught, for which he was called *Bicongius*: two *Congii* make above ſeven Quarts. The ſame Author tells you that *Novellus Torquatus* a *Milaneſe* in preſence of the Emperor *Tiberius* drank off at once three *Congii*; or 2 Gallons, 6½ Pints, from whence he was called *Tricongius*: which are incredible ſtories.

* *Cato* during the time of the *Saturnalia* and *Compitalia* allowed each of his Servants *per* day a *Congius* of Wine, or 7 Pints, 4,942 Inches.

Narratur & priſci Catonis
Sæpe mero caluiſſe virtus. Hor.

From

* Cato de re ruſtica cap. 57. Saturnalibus & Compitalibus in ſingulos homines Congios.

From *Congius* comes *Congiarium*, which ſignifies a gift that the Emperors and Magiſtrates of *Rome* uſed to give to their friends, or to the people on certain occaſions; it was ſo called becauſe at firſt a *Congius* of Wine or Oyl was given to every one: the ſame name remain'd after, when thoſe gifts were given in money: whereof there are ſeveral inſtances in this Book. [d] *Ancus Martius* gave 6000 *Modia* of Salt, or 188 Quarters, 5 Pecks, as a *Congiarium* to the people.

Pliny lib. 14. *c.* 14. writes that when *Lucullus* return'd from *Aſia, millia cadorum congiarium diviſit amplius centum. Budæus* reads *congiariorum* for *congiarium*, and thinks that *cadorum congiariorum* ſignifies *Cadi* of the capacity of a *Congius*, or ſix *Sextarii*. But *G. Agricola* underſtands *Congiarium Cadorum*, a *Congiary* of ſo many *Cadi*, which *Lucullus* diſtributed among the people, taking *Cadus* for a certain Meaſure of it ſelf.

[e] *Quintilian* tells that *Auguſtus*'s *Congiaria*, for their ſmalneſs were called *Heminaria*, alluding to the meaſure *Hemina*, which is one twelfth of the *Congius*; but this cannot be underſtood of all of them.

The gifts of the Emperors to the Soldiers were called *Donativa*. *Suetonius* talking of *Nero*, ſaith, *Populo congiarium, militi donativum propoſuit*. At the Triumph of *Metellus*, Wine was ſold for an *As* the *Congius*, which comes to little more than 3 farthings the Gallon.

From *Congius* comes *congialis*, uſed by *Plautus*: as *Fidelia Congialis*: it ſignifies a veſſel holding a *Congius*.

Sextarius was a Meaſure not only of liquid, but of dry things. There was a *Sextarius Caſtrenſis*, as well as *Urbicus*, of a different Meaſure.

The *Sextarius Urbicus* for Liquids was the 48th part of the *Amphora*, the 24th of the *Urna*, the 6th part of the *Congius*, from

[d] Plin. lib. 31. cap. 7. Ancus Martius IV. Rex Rom. Salis modia ſex millia in congiario dedit populo. [e] Lib. 6. cap. 4. Fabius Maximus incuſans Auguſti congiariorum, quæ amicis dabantur, exiguitatem, heminaria eſſe dixit. Nam congiarium cum ſit commune liberalitatis atque menſuræ, à menſura ducta imminutio eſt rerum.

from whence it had its name. This *Sextarius* is divided into two *Heminæ* or *Cotylæ*, according to the verſes of *Rhemnius Fannius*,

At Cotylas, quas ſi placeat dixiſſe licebit
Heminas, recipit geminas Sextarius unus.

It is likewiſe divided into four *Quartarii*, which are the half of a *Hemina*, as appears from *Voluſius Mætianus*. It is called *Quartarius* with reſpect to the *Sextarius*, whoſe 4th part it is. A *Sextarius* is alſo divided into 8 *Acetabula*, according to *Pliny lib.* 21. *cap. ultimo.*

The parts of the *Sextarius* were like thoſe of the *As*; *Uncia*, *Sextans*, *Quadrans*, *Triens*, *Quincunx*, *Semis*, *Septunx*, *Bes*, *Dodrans*, *Dextans*, *Deunx*; by which words a certain number of *Cyathi* is meant, a *Cyathus* being one 12th of the *Sextarius*.

It was a cuſtom among the Ancients at their entertainments, to drink as many *Cyathi* to the health of their friend or miſtreſs, as there were letters in their name. *Mart. lib.* 1.

Nævia ſex Cyathis: ſeptem Juſtina bibatur:
Quinque Lycas: Lyde quatuor: Ida tribus:
Omnis ab infuſo numeretur amica Falerno.

And *lib.* 5. *Mart.*

Sextantes, Calliſte, duos infunde Falerni.

Two *Sextantes* were $\frac{2}{12}$ of a *Sextarius*, or 4 *Cyathi*. According to *Cornelius Nepos*, *Auguſtus Cæſar*'s higheſt debauch in Wine was ſix *Sextantes*, that is a *Sextarius*, or a little above our Pint: which he was not able to exceed without vomiting.

The *Sextarius Caſtrenſis* was double of the *Urbicus*, which *Agricola* infers from a paſſage of St. *Jerome* upon *Ezekiel*. This *Sextarius Caſtrenſis* may have occaſion'd the expreſſion of a Soldier's Bottle.

Hemina

Hemina the half of the *Sextarius*. (*Aulus Gellius lib.* 3. *cap.* 14.) It contains two *Quartarii*, 4 *Acetabula*, 6 *Cyathi*, 24 *Ligulæ*: as appears from *Voluſius Mætianus*. The *Greeks* ſometimes uſe *Hemina*, adding ῥωμαϊκὴ or ἰταλικὴ.

Quartarius, the fourth part of the *Sextarius*, as was ſaid before.

Acetabulum, the half of the *Quartarius*, was firſt ſo called from *Acetum*, in imitation of the *Greeks*, by whom it is called ὀξύβαφος and ὀξύβαφον, becauſe it was firſt us'd for holding Sauce for meat; and afterwards became a certain meaſure of liquids.

Cyathus, the 12th part of the *Sextarius*, is a *Greek* word coming from χύειν, *fundere*.

Ligula, likewiſe called *Lingua*, firſt ſignified a Spoon, but afterwards the *Latin* Phyſicians came to uſe it as a meaſure, containing one 48th of the *Sextarius*. *Columella lib.* 12. *cap.* 21. ſaith it was the fourth part of the *Cyathus*.

Cochlear, *Cochleare* and *Cochlearium* often denote a Spoon, and ſometimes a Meaſure equal to the *Ligula*. They are us'd by *Pliny* and *Columella*.

There was alſo amongſt the *Romans* a *Libra menſuralis*, which the *Greeks* called λίτρα μετρικὴ, and diſtinguiſhed from the λίτρα ſταθμικὴ or the *libra ponderalis*. This conſiſted of 12 Ounces, and was divided likewiſe as the *As*. It was made commonly of horn, and divided by 12 lines, marking the Ounces, from whence it was called by *Galen* κέρας μετρᾶιον, *cornu menſurale*. According to *Galen lib.* 6. *de compoſ. Medicament.* this *Libra menſuralis* weighed 10 Ounces of Oyl, and of Wine 11 Ounces, 2 Scruples, 1 *Obolus*, and 1 *Siliqua*, according to the ponderal *Libra*. The Ancients all along ſuppos'd the weight of Oyl to be to that of Wine, as 9 to 10, which tho' it differs from our proportion, might be true in a warmer Country, the warmth of the Air expanding Oyl more than Wine. This proportion of the ſpecifical gravity of thoſe two liquors holds in this computation; for 11 Ounces, 2 Scruples, 1 *Obolus*, 1 *Siliqua* make 1600 *Siliquæ*; and 10 Ounces make 1440 *Siliquæ*; and dividing both by 160 makes it as 9 to 10. Ac-

cording

cording to this weight of Wine aſſign'd by *Galen*, the *Libra menſuralis* contain'd 19,085 ſolid Inches, ſomewhat leſs than $\frac{3}{4}$ of our Pint, Wine meaſure. But the *Roman* Meaſures varying, in all appearance this originally was deſigned to contain 12 ponderal Ounces of water, according to which weight it would be equal to 20,612 ſolid Inches, the difference between the two being only 1,527 ſolid Inches.

Of Roman *Meaſures of Capacity for things dry.*

MOdius, and ſometimes in *Pliny Modium*, deriv'd from *modus*, was a Meaſure for things dry. It was the third part of the *Amphora* or *Quadrantal*, according to *Voluſius Mætianus*. As the *Modius* was the third part of the *Amphora*, ſo the *Amphora* was one half of the *Medimnus*. *Rhemnius Fannius* ſpeaking of the *Amphora*

Hujus dimidium fert Urna, & ipſa Medimni
Amphora, terque capit Modium: Sextarius iſtum
Sexdecies haurit.

Pliny ſpeaking of the value of ſeveral ſorts of Wheat *lib.* 18. *c.* 7. ſays the *Gallick* Wheat and that from the *Cherſoneſus* was the lighteſt, not exceeding 20 *Libræ* the *Modius*. The *Sardum* was a *Selibra*, or half a pound heavier; the *Alexandrian* and *Sicilian* Wheat added *trientes*, or four Ounces more, that is, weighed 20 Pounds and 10 Ounces. The *Bœotian* an entire Pound, being in all 21 Pounds. The *African* added to that a *Dodrans*, or in all 21 Pounds, 9 Ounces. According to this Account of *Pliny*'s, the Weights of the Wheat ſtood as follows,

Modius Gallican	240	
Sardum	246	
Alexandrian	250	} *Roman* Ounces.
Bœotian	252	
African	261	

In

In *Engliſh* Meaſure and Weight thus;

Peck of Wheat	Ounces *Troy*	Pounds	Ounces.
Gallican	218,517	18	2½
Sardum	223,979	18	8
Alexandrian	227,621	18	11⅓
Bœotian	229,442	19	1⅓
African	237,637	19	9⅓

According to a Table of Sir *Jonas Moor*'s, a Peck of *Engliſh* Wheat weighs 204,884 Ounces, or, 17 *lb.* 1 *oz.*

The lighteſt Grain in the former account weighs above one 18th part more than *Engliſh* Wheat. The *Gallican* Wheat was that of the ſouthern parts of *Gaul*, and I believe the ſame proportion would anſwer obſervation at this day. All which is to be underſtood at a *medium*, for the weight of grain differs very much in different years.

I have been more particular in the account of this experiment of *Pliny*, becauſe it ſhews that the Meaſure of the *Roman Modius* is calculated pretty true, tho' by ſome Writers it is reckon'd an uncertain Meaſure. There are *Trimodia* and *Decemmodia*, ruſtick Veſſels. *Colum. lib.* 12. *cap.* 18. & 5.

Cato ſpeaking of the allowance to Servants, gives it as follows. *Familiæ cibaria; qui opus facient per hyemem tritici modios quaternos, per æſtatem quaternos ſemis: Villico, Villicæ, Epiſtatæ, Opilioni modios Ternos: Compeditis per hyemem panis pondo quaterna: ubi vineam fodere cæperint, panis pondo quina, uſque adeo dum ficus eſſe cæperint: deinde ad panes quaternos redito.*

This allowance of four or five *Modii* of Wheat which is ſomewhat more than ſo many of our Pecks, muſt be ſuppoſed monthly, for *Donatus* in *Phormionem Terentianum* informs us that the monthly Allowance of Servants was four *Modii*: from whence it was called *Demenſum* either from *Menſis* or *demetiendo*: which is a word uſed by *Terence*, as follows, *Quod ille unciatim vix de Demenſo ſuo, ſuum defraudans genium comparſit miſer, id illa univerſum abripiet, haud*

exiſtimans

exiſtimans quanto labore ſit partum. It is to be obſerved that the *Bayliff*, *Reive* and *Shepherd*, had leſs allowance of Wheat than the reſt, but it is to be preſum'd they had beſides their Wheat other proviſions given them which the inferior ſervants had not. As for the four or five *Pondo* of Bread which the *Compedites* had, it's not certain what time it was to ſerve them.

It will afford ſome light in the analogy of their Meaſures ſuperficial and of Capacity, as well as in their Husbandry, if we take notice what quantity of ſeed of ſeveral grains they us'd to ſow in a given quantity of ground; which according to * *Pliny* was

5 *Modii* of Wheat
6 *Modii* of Barley
6 *Modii* of Beans
3 *Modii* of Peaſe
} to the *Jugerum*.

Which in *Engliſh* Meaſure is

Buſh.	Pecks.		
2 - - - -	0 $\frac{1}{5}$	Wheat	
2 - - - -	1 $\frac{1}{6}$	Barley	*per* Acre.
2 - - - -	1 $\frac{1}{6}$	Beans	
1 - - - -	0 $\frac{11}{12}$	Peaſe	

There are ſeveral other Grains mention'd in that Chapter, but this is ſufficient for a proof.

Semimodius, or the half *Modius* containing 8 *Sextarii*, is mention'd by *Cicero*, *Varro* and others.

Sextarius was likewiſe us'd as a Meaſure of dry things: as in *Palladius*: *Triginta columbis volantibus diurni tres Sextarii tritici ſufficiunt.*

Hemina is a meaſure of things dry in *Cato*, *Columella* and *Palladius*.

Quartarius,

* Plin. lib. 18. cap. 24. Serere in jugera temperato ſolo juſtum eſt, tritici aut ſiliginis Modios V. - - - Hordei VI. Fabæ quintam partem amplius quam Tritici - - - - - Piſi III.

Quartarius, *Pliny* uſes as a Meaſure of things dry. *lib.* 18. *c.* 43. And ſo were *Acetabulum*, *Cyathus* and *Ligula*, whoſe capacities and proportions to one another, are already given in the chapter of liquid Meaſures.

Varro and *Pliny* mention *Concha* as a Meaſure for things Dry. *Cleopatra* ſaith it was of two ſorts, the leſſer was equal to one half *oxybaphum*; and the greater to an *oxybathum* and a half.

GREEK *Meaſures of Capacity.*

IN reducing the *Greek* ſolid Meaſures to the *Engliſh* I ſhall make uſe of the χοῦς, which made in Weight 720 *Drachms* according to all Authors, ſuppoſe of Rain-water, the Anients making no difference betwixt the weight of that and Wine. Taking the heavieſt *Attick Drachm*, which is the hundredth part of the old *Attick Mina* or our *Averdupois* Pound, and neglecting the ſmall difference in the Tables, I ſhall ſtate it at 70 Grains *Troy*. According to this *Drachm*, the weight of the *Attick* χοῦς muſt be 50400 Grains. There are in a ſolid Foot 1728 ſolid Inches, weighing 76 Pound of Rain-water: by this Experiment, 760 Grains make 3 ſolid Inches, therefore 50400 make 198,94737 ſolid Inches, the number of ſolid Inches in the χοῦς; which is 6 Pints, 25,698 ſolid Inches, ſomewhat leſs than the *Roman Congius*, tho' the *Greek* χοῦς and the *Roman Congius* are uſed indifferently as the ſame Meaſure by ancient Authors; as likewiſe are the 6th part of them, the ξέστης and *Sextarius*, and the 12th, the κοτύλη and the *Hemina*. There is great probability that the *Greeks* meaſured the capacity of their veſſels by the weight of Oyl, the product of their Country. For the Phyſicians ſpeaking of thoſe Meaſures always mention their weight in Oyl; and *Galen* ſpeaking of the *Cotyla*, ſaith that *Heras* underſtood the *Cotyla* to be of 60 *Drachms*, reducing the weight to Oyl. *Galen lib.* 5. *de compoſ. Medicam.* I find likewiſe that it is a general Suppoſition among the Ancients, that the weight of

Oyl was to that of Wine as 9 to 10; ſo in the fragment printed after *Galen* of the *Compoſition of Medicines*, 72 Pounds of Oyl is made equal in bulk to 80 Pounds of Wine, 9 Pounds of Oyl to 10 Pounds of Wine, and ſo every where. According to our experiments the weight of Oyl is to that of Wine or freſh water as 476 to 527, which is very near as 9 to 9,96. So ſmall a difference, as we obſerv'd before, may be accounted for, by the Oyl weighing leſs in a warm country than in ours: for warm Air expands Oyl more than water. If we were to make a χοῦς from holding 720 *Drachms* or 70 *Troy* Grains of Oyl, upon this ſuppoſition of the ſpecifick weight of Oyl being to that of water, as 9 to 10, it would be much larger than the *Roman Congius*, the contrary of which is known. But if they ſettled their χοῦς by the weight of Oyl, it muſt have been by a *Drachma* of 63 Grains, very near ſuch as that of the Tables.

The largeſt *Greek* Meaſure for things liquid was the *Attick* μετρητὴς of the maſculine gender, (tho' *Cato* and *Columella* uſe *Metreta* feminine) μετρητὴς ἔχει ξέσας οβ', that is, the *Metretes* is 72 ξέσας, *apud Nicandri interpretem. Dioſcorides de vino veratro*, ſaith ἔστι δὲ ὁ μετρητὴς χόες ι, that is to ſay, it contains 10 χόες. Some approve of this reading: But *Alciatus* and *G. Agricola*, inſtead of χόες ι, read χόες ιβ'. So that it contain'd 12, which is confirmed by *Epiphanius*, *Cleopatra* and *Galen*. *Rhemnius Fannius* makes the *Metretes* ⅔ of the *Amphora*, in theſe verſes,

Attica præterea dicenda eſt Amphora nobis,
Seu Cadus; hunc facies, noſtræ ſi addideris Urnam.

But this is true only on ſuppoſition that χοῦς and *Congius* were preciſely equal, whereas they were but nearly ſo. *Metretes* is called ἀμφορεὺς in *Pollux*, but ἀττικὸς is to be underſtood, to diſtinguiſh it from the *Roman*. *Dioſcorides lib.* 5. uſes μετρητὴς ἰταλικὸς for the *Roman Amphora*.

Κάδος

Κάδος comes perhaps from χαδεῖν, which ſignifies to contain, or from the *Hebrew Cad*, a Meaſure mention'd in the Bible, and tranſlated ὑδρία by the LXX. It was a Meaſure equal to the *Metretes*. For what *Dioſcorides* lib. 5. calls μετρητὴν γλεύκους; *Pliny lib.* 14. *cap.* 16. renders *Cadum muſti*. It is ſometimes writ with a double δ; as in *Pollux lib.* 9. where he tells that ἀμφορεὺς was called κάδδος by the Ancients. And the ſame Author relates from *Philochorus* that ἡμιαμφόριον eſſe ἡμικάδδιον. From κάδος comes κάδιχος and κάδδιχος, as *Congialis* from *Congius*.

Julius Cæſar at his Triumphal Supper, according to *Pliny*, *lib.* 14. *cap.* 15. gave 100 *Cadi* of *Chios* Wine, that is 4 Tuns, 25 ½ Gallons.

The ſame Author ſaith *lib.* 14. *cap.* 15. that *Hortenſius* left to his heir 10000 *Cadi* of Wine, that is 410 Tuns, and 28 Gallons.

L. Lucullus gave a *Congiary* of 100000 *Cadi*, or 4101 Tuns, 44 Gallons.

Cadus was called κεράμιον. *Heſychius* ſaith κάδος ἐστὶ κεράμιον. In ſeveral printed books *Ceraunium* is put erroneouſly for *Ceramium*.

Heſychius ſaith κεράμιον τὸ οἶνο ἢ ὕδατος σαμνίον. So *Cadus* and *Stamnium* are the ſame.

Suidas makes a difference betwixt χοῦς and χοεὺς, when he ſaith χᾶς δύο ξέσαι, χοεὺς ὃ ἕξ. But all other Authors make them the ſame. The *Greek* Phyſicians ſometimes uſe χᾶς for the *Roman Congius*, the difference being but ſmall.

Athenæus relates that *Milo* a *Crotoniate* drank at once 3 *Choæ* of Wine, which is about 2 Gallons, five Pints.

The ſame Author ſaith that *Alexander* after he had drank up a Cup of 2 *Choæ* (or 14 Pints) and was going to take another, he fell ill and dyed.

Choes were certain Feſtivals at *Athens*, ſo called becauſe every one had a *Chus* of Wine given him, according to *Suidas*. And *Athenæus* ſays that *Demophoon* King of *Athens* promiſed the reward of a ſweet Cake, and *Dionyſius* the Tyrant a Crown of Gold, to the

the firſt man who drank a χοῦς (or 7 pints) in thoſe holidays: which was a very barbarous thing among ſuch polite people as the *Athenians.*

The χοῦς contain'd 12 *Cotylæ* according to *Cleopatra,* ὁ χοῦς ἔχει μέτρῳ μὲν κοτύλας ἀττικὰς δώδεκα. The ſame is confirm'd by others. And *Athenæus lib.* 11. ſaith that λάγυνος contain'd the ſame number of *Cotylæ.* So it was equal to the χοῦς. It is ſometimes us'd in the neutral gender as λάγυνον, and ſometimes it is called λαγήνον: which ſome tranſlate *lagena.*

As the *Romans* borrowed the name of the *Congius* from the *Greek* χοῦς, ſo did the *Grecians* in later times borrow the ξέστης from the *Roman Sextarius.* It was the 6th part of the χοῦς; as appears from *Galen* and others.

Κοτύλη, ſo called from its Cavity. *Athenæus lib.* 19. πᾶν τὸ κοῖλον κοτύλην ἐκάλουν οἱ παλαιοὶ, *i. e.* the Ancients called every concave thing κοτύλη. The ſame Author ſaith likewiſe κοτύλη ᾗ καλεῖται ἡ ἡ τῶ ἰσχίου κοιλότης; that is, the Cavity of the *Coxendix* is called *Cotyla.* There were, according to *Galen,* ſeveral *Cotylæ,* ſuch as the *Alexandrian* and *Epheſian*: but the *Attick Cotyla* was one half of the ξέστης. *Interpres Ariſtoph. in Plutum,* ſaith κοτύλη ᾗ ἐστὶν εἶδος μέτρου, ὃ λέγομεν ἡμεῖς ἡμίξεστον; *i. e.* the *Cotyla* is a Meaſure which we call a half ξέστης. *Rhemnius Fannius,*

At Cotylas, quas, ſi placeat, dixiſſe licebit
Heminas: recipit geminas Sextarius unus.

From κοτύλη comes τριακοτύλος οἶνος in *Heſychius,* which ſignifies as much wine as three κοτύλαι hold.

Τρυβλίον was the ſame Meaſure as the κοτύλη, as appears by *Cleopatra* and *Galen.*

Ὀξύβαφον was a Meaſure anſwering to the *Roman Acetabulum. Plin. lib.* 15. *cap. ult.* ſaith it was the fourth part of the *Hemina. Heſychius* ſaith it was called αἶς, ἄλις, βάφιον, and γάβρινον.

Κύαθος

Κύαθος was the 12th part of the ξέσης, according to *Epiphanius* and others: from thence comes κυαθίζειν, *cyathiſſare*, which *Plautus* uſes in *Menæchmis*; it ſignifies to fill drink to one, or ſerve one at drinking. *Suetonius* likewiſe uſes this word *Cyathiſſare*.

Κόγχη, or *Concha*, has its name from a Shell: there were a greater and a leſs; according to *Cato cap.* 13. *de re Ruſt.* But it appears from theſe words of *Pliny lib.* 12. *cap.* 25. *Alexandro M. res ibi gerente, toto die æſtivo, unam concham impleri, juſtum erat*; that it was a certain Meaſure. *Cleopatra* ſays that the greater *Concha* was equal to the *Oxybaphum*, and the leſſer to one half of the *Cyathus*.

Μύσρον, and ſometimes μύσλον, is ſo called from μῦς, a Mouſe. *Ariſtotle* ſaith the ſea-mouſe was a ſhell-fiſh; and from it probably this Meaſure is ſo called. *Cleopatra* relates that of this Meaſure there were two kinds, the greater which was the 16th part of the *Cotyla*; and the leſſer the 4th part of the *Cyathus*. ὁ κύαθος ἔχει μικρὰ μύσρα τέσσαρα. The greater *Myſtrum* was called *Georgicum*: as being only a Ruſtick Meaſure. *Myſtrum* is called βάρβος by *Heſychius*.

Χήμη was a Meaſure, having alſo its name from a Shell-fiſh. There was the greater or Ruſtick *Cheme*, the 20th part of the *Cotyla*: but the leſſer, which the Phyſicians uſed, was the 30th part of the *Cotyla*. This appears from *Cleopatra*.

Κοχλιάριον, in *latin Cochlear*, was the ſmalleſt Meaſure for liquids, it is equal to one half of the *Cheme*. *Rhemnius Fannius*,

\- - - - - - - - *At tertia Myſtri*
Quam vocitant Chemen, capit hæc Cochlearia bina.

GREEK

GREEK *Meaſures of things dry.*

ΜΕδιμνος, or μέδιμνον in the neuter gender, the *Greeks* commonly uſed it with the acute Accent on the *antepenultima*: but the *Athenians* writ it μεδίμνος, with the accent on the *penultima*. It was a Meaſure for dry things, ſuch as Wheat, Barley, Flower, &c. and contain'd 48 *Chœnices* according to *Pollux*, *Harpocration*, and *Galen de menſuris*. But this here is meant of the *Attick Medimnus*: for there was likewiſe the *Georgicus*, *Macedonicus*, *Siculus*, *Cyprius*, &c.

Suidas mentions the following proverb: μεδίμνῳ ἀπομετρῶ τὰ τῦ πατρὸς ἀργύριον, *h. e.* I meaſure the money my Father leaves me by a *Medimnus*: (with a Buſhel.) Which is the ſame as one ſhould ſay, that he had a great fortune left him.

Χοῖνιξ or *Chœnix* is a dry Meaſure containing 3 *Cotylæ* according to *Cleopatra*: and ſo was $1\frac{1}{2}$ of the ξέσης; which already is ſhewn to be 33,158 ſolid Inches: this number multiplied by $\frac{1}{2}$ gives 49,737 ſolid Inches equal, to the *Chœnix*; which again multiplied by 48, gives the *Medimnus* 2387,376 Inches, that is 4 Pecks, 6 Pints, 3,501 Cubick Inches.

The ξέσης, κοτύλη, ὀξύβαφον, κύαθος, and κοχλιάριον, were alſo uſ'd as Meaſures for things dry; their capacity and proportion to one another is the ſame as when they are Meaſures for liquids, which have been ſhown already.

The JEWISH *Meaſures of Capacity.*

IN determining the capacity of the *Jewiſh* ſolid Meaſures I have followed Dr. *Cumberland* in the Tables formerly publiſhed. There is a greater difference between the *Rabbins* and *Joſephus* in the account of the *Jewiſh* Meaſures of Capacity, than in that of their Weights and Coins. However we ſhall not ſo poſitively adhere

to

to the one or the other, as to omit giving the Objections and Arguments on both ſides. Dr. *Cumberland* takes the *Ephah* to be the 6th part of the Cube of the *Jewiſh* or *Ægyptian* Cubit, which Cube is called *Ardub*. The *Ægyptian* Cubit is according to him 21,888 Inches, and its Cube 10486,2, whoſe ſixth part is 1747,7 ſolid Inches equal to the *Ephah*. That the *Ephah* was the 6th part of the Cube of the *Ægyptian* Cubit, the Biſhop proves from the accounts of the *Arabian Mathematicians*, in which by an uſual commutation of the quieſcent letters it is called *Oeba* or *Waiba*, which laſt word is us'd in the *Arabian* tranſlation to expreſs *Ephah*.

According to *Golius*, at *Babylon* the *Ardub* was equal to ſix *Ephahs*, and this proportion was generally acknowledg'd in the Eaſtern Countries. He obſerves that 1747.7 ſolid Inches differ very little from 1728, the Cubick Inches of an *Engliſh* Foot. The neglect of a few centeſimals in the ſide of the Cube would bring it to an equality with the Cube of a Foot.

The Biſhop obſerves likewiſe that his *Ephah* or 1747,7 Cubick Inches contains 1000 Ounces of pure Rain water; this is not true, ſuppoſing the niceſt proportion that the *Averdupois* Pound has to the *Troy* is that of 175 to 144; tho' that in the Tables be only as 17 to 14, neglecting the laſt figures. According to which the *Averdupois* Ounce (whereof there are 16 in the Pound) is to the *Troy* Ounce as 175 is to 192; and 100 Ounces *Averdupois* are equal to 43750 Grains *Troy*, which allowing 760 Grains to a Cubick Inch of Rain-water, make 1726,97 ſolid Inches: which is exceeded by the Biſhop's *Ephah* or 1747,7 by 20,73 ſolid Inches, above $\frac{1}{3}$ of a Wine-pint. The *Ephah* or 1747,7 ſolid Inches make of Wine-meaſure 7 Gallons, 4 Pints, 15,2 ſolid Inches: and of Corn-meaſure 3 Pecks, 2 Pints, 32,075 ſolid Inches.

Joſephus lib. 15. *cap.* 11. ſaith ὁ κόρος δύναται μεδίμνους ἀττικοὺς δέκα: whereby it is inferr'd that the *Ephah*, the tenth part of the *Corus*, was equal to the *Medimnus Atticus*: which according to the Tables contains 2354,751 ſolid Inches: and exceeds the Biſhop's *Ephah* by 607,051 ſolid Inches, which make above a

quarter of the whole Meaſure: and ſeems to be too great a difference to happen by any neglect in the menſuration.

The Biſhop propoſes an Argument drawn from his emendation of the following corrupted paſſage of *Heſychius* ὀιφὶ μέτρον Αἰγύπτιον τεσσαρακοίνικον, *h. e.* the *Ephah* an *Ægyptian* Meaſure equal to four *Chœnices*: which is certainly very far from the truth. The Biſhop for τέσσαρα puts ΔΔΔIIII, which ſignify 34, and ſo makes the *Ephah* to be 34 *Chœnices*, which coincides nearly with his determination of it. But this ſeems to be a very weak argument.

Salmaſius in his Epiſtle to *Walæus*, cites an ancient *Anonymous Latin* Author, who affirms that *duo Cori Culleum reddunt*, *h. e.* that two *Cori* are equal to a *Culleus*. A *Culleus* contain'd 20 *Amphoræ*, and a *Corus* 10 *Ephahs*. Therefore according to this paſſage the *Ephah* was equal to the *Roman Amphora*, which, according to the Tables, is 7 Gallons, one Pint, and 10,66 ſolid Inches, or 1656,535 ſolid Inches, which is leſs than 1747,7 Inches by 91,165 ſolid Inches, or above 3 Wine Pints.

Another argument of the Biſhops is, that "*Suidas* in σάτον, "which is the *Hebrew Seah*, affirms it to be the *Roman Modius* fil- "led ſo as to run over its brinks, and that it holds in liquids 15 "*Sextaries* or 25 Pounds." But this is a falſe Meaſure of the *Roman Modius* given by *Suidas*, for it contains 16 *Sextaries*, or 16 Pounds 8 Ounces. The Biſhop adds that "15 *Roman Sextaries* are equal "to 2½ *Congii*, which in ſolid Inches meaſure of water makes "517,66, being 300 Ounces of Weight, but this is leſs than "the 3d part of our *Ephah*, that being 582: ſo there wants above "a Quart of our Wine meaſure. And *Suidas* implicitly confeſſeth "his Meaſure too little, by ſaying it muſt be ὑπερπεπληρωμένον, "heaped up ſo as to run over. But if inſtead of 15 *Sextaries* there be taken a *Modius*, which is 16 *Sextaries*; that heaped up ſo as to run over will come very near the Biſhop's *Seah*, or third part of the *Ephah*.

The

The Biſhop proceeds to inform us "that the *Modius* was leſs "than the *Seah*; *Epiphanius* affirmeth, that it was equal to a *Modius* "and $\frac{1}{7}$, and *Joſephus lib.* 9. *c.* 2. and *Hierom*, on *Matth.* xiii. "33. ſay, it was an *Italian Modius* and an half.

After giving the menſuration and argumentation of Dr. *Cumberland*, Biſhop of *Peterborough*, I think it would not have been fair to have ſuppreſs'd thoſe of another Reverend Prelate, who ſeems to be much better qualify'd than the former to write upon this Subject. There are Tables computed upon both Syſtems, and the Reader may uſe which he pleaſeth.

JEWISH *Meaſures for things liquid.*

BATH, ſo called from Cavity or Capacity, the LXX write it βαὶθ. ἢ εἴκοσι χιλιάδας βαὶθ ἐλαίϖ. 1 *Kings*, *cap.* 5.

According to *Joſephus lib.* 8. *cap.* 2. it contain'd 72 *Attick Sextarii*, which is different from Biſhop *Cumberland*'s Meaſure in the Tables. The LXX render it ſometimes by the word itſelf, as before; ſometimes by μετρητὴς, 2 *Chron. cap.* 4. ſometimes by χεραμιον *Iſaiah cap.* 5. The ancient *Latin* verſion tranſlates it *Lagena*. It was the 10th part of the *Chomer* in liquid things, as the *Ephah* was in dry. *Ezekiel* xlv. 11. *The Ephah and the Bath ſhall be of one Meaſure, that the Bath may contain the tenth part of an Homer, and the Ephah the tenth part of an Homer.*

Hin likewiſe a liquid Meaſure, as of Oyl. *Exod.* 30. *Ezek.* xlv. 46. Of Wine *Exodus* 29. *Levit.* 23. According to *Joſephus*, it contain'd two *Attick Congii*, *lib.* 3. *cap.* 9 & 10. Therefore it was the 6th part of the *Ephah*. *Joſephus* writes, *lib.* 3. αρχαιολ. that they offered with an Ox the half of a *Hin* of Oyl; or in *Engliſh* Meaſure according to *Joſephus* 6 Pints, 25,698 ſolid Inches, according to the Tables, 5 Pints 1,267 ſolid Inches. With a Ram they offer'd the third part of a *Hin* or 3, Pints, 10,469 ſolid Inches. And with a Lamb the 4th part, or 2 Pints, 15,071 ſolid Inches.

The Prophet *Ezekiel* was commanded to drink water to the quantity of the 6th part of a *Hin*, that is 1 Pint, 19,672 ſolid Inches.

The LXX render *Hin* falſly χοῦν or one *Congius*, *Levit.* 19. and with a much greater difference from the truth, the *Latin* Verſion renders it *Sextarius*. *Epiphanius* makes a twofold *Hin*, the greater of 18 *Sextarii*, the leſſer of 9.

Log, a Meaſure of liquids, *Levit.* 14. It was the 72d part of the *Bath* or *Ephah*, and the 12th part of the *Hin*, according to all the accounts of the *Jewiſh* Writers. *Benedictus Arias* upon *Ezekiel* derives *Lagena* from *Log*. The ancient *Latin* verſion tranſlates it *Sextarius*. And the *Greek* verſion falſly, *Cotyla*, *Levit.* 14.

The *Cor* or *Chomer*, and with a *Greek* termination *Coros*, it was moſt commonly a Meaſure for things dry, and the greateſt that was us'd among the *Jews*. As of Barley, *Levit.* 27. of Wheat 1 *Kings* iii. 2. 2 *Chron.* ii. 1. It contain'd according to the *Rabbins* 10 *Ephahs*, and 30 *Sata* or *Seahs*. *Coros* is the more uſual term in the hiſtorical Writers, and *Chomer* amongſt the Prophets.

Joſephus lib. 15. *cap.* 11. ἀρχαιολ. makes the *Coros* equal to 10 *Medimni Attici*, becauſe he makes the *Ephah* equal to one *Medimnus*. The *Jews* were commanded to give the 6th part of an *Ephah* out of the *Homer* of Wheat, *Ezek.* xlv. *Chap.* 13. that is one part out of ſixty.

Epiphanius makes the *Coros* equal to 30 *Roman Modii*, and the ancient verſion renders it the ſame. *Iſaiah* 5. *Levit.* 27. According to which proportion the *Seah* and the *Modius* muſt be equal. *Benedictus Arias* in *Sata* ſaith that a piece of ground ſowed with a *Coros* of *Barley*, could not be leſs than 730,000 ſquare Cubits: That is, a piece of Ground ſowed with a *Quarter* of Barley could not be leſs than 55½ Acres, which cannot be true.

The *Comer* contain'd two *Letechs*, *Hoſea* 3. The 100 *Cori* of Barley, 1 *Eſdras* vii. 3. Or a *Letech* was the half of the *Comer*, and ſo the ancient Verſion has it. St. *Ambroſe lib.* 9. *Epiſt.* calls it *Semigomer*.

Ephah

Ephah was a Meaſure of things dry, as of Barley, *Ruth* 2. and Meal, *Judges* 6. and *Numbers* 5. and was of the ſame capacity with the *Bath* in liquids. It contain'd 3 *Sata* or *Seahs*. The *Chaldaic* Paraphraſe renders the *Ephah* 3 *Seahs*, the ancient verſion 3 *Modii*. *Ruth* 2. *Joſephus lib.* 9. *cap.* 2. makes the *Seah* equal to 1½ *Italick Modius*, the *Seſquimodius* containing 24 *Sextarii*, which multiplied by 3, makes 72, the Meaſure of the *Ephah* aſſign'd by him. The LXX render *Ephah* variouſly, ſometimes by the word it ſelf, ὀιφὶ or ὀιφεὶ. *Levit.* 5. *Numbers* 15 and 18. *Judges* 6. *Ruth* 2. 1 *Samuel* 1. and 25. Sometimes by the word πέμμα. *Ezek.* 45. So the *Latin* Verſion has *Ephah* variouſly tranſlated: as by *Ephi*, a corruption of *Ephah*; and by *Modius*, *Levit.* 19. and ſometimes it's render'd 3 *Modii*, *Eſai.* 5. *Ruth* 2. ſometimes it is confounded with *Satum* or *Seah*: It's render'd *Amphora* by the old verſion, *Zachar.* 5.

Satum or *Seah* is one of the oldeſt Meaſures for dry things, as of Meal, *Gen.* 18. 1 *Kings* 18. 2 *Kings* 7. It was the third part of the *Ephah*.

The LXX render it variouſly; ſometimes by μέτρον in general. *Gen.* 18. ſometimes very improperly by μετρητὴς, which is a Meaſure for liquids, and much larger than a *Seah*; ſometimes they render it ὀιφὶ, 1 *Sam.* 25. which contains 3 *Seahs*. And *Hagg.* 2. the LXX has σάτα, whereas in the original there is no particular Meaſure mention'd.

The old *Latin* Verſion has *Seah* differently render'd, as by *Satum*, 1 *Sam.* 25. by *Modius*, *Ruth* 3. 1 *Kings* 18. it's tranſlated 2 *aratiuncuæ*.

Omer or *Gomor* is a Meaſure for things dry. *Exod.* 16. *Levit.* 5 and 6. it was the 10th part of the *Ephah*.

The LXX and *Epiphanius* confound this Meaſure with *Chomer* or *Coron*, (which is a much greater one:) and render them both by γόμος.

Aſſaron and τὸ δέκατὸν, ſignify the ſame as *Gomor*. *Joſephus lib.* 8. calls it ἐσταρέων. In the *Hebrew* inſtead of *Gomor*, *Aſſarith* is often us'd, it ſignifies the 10th part, *viz.* of the *Ephah*. *Jo-*

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ſephus lib. 3. ſays that in the time of *Claudius* an *Aſſaron* or *Omer* of Meal was ſold for four *Drachmæ*, that is at the rate of 8 Shillings the Peck: but it was in the time of a dearth.

Cab or *Kab*, and κάβος in *Epiphanius*, in *Latin Cabus*, was the 6th of the *Seah*. *Benedictus Arias* ſaith that a *Cab* of Wheat ſowed 10½ ſquare Cubits of Ground, which is at the Rate of 6 Quarters, 7 Buſhels and 1 Peck to the *Engliſh* Acre.

In the Scriptures are alſo found *Nebel*, *Aſiſa*, *Nod*, *Cad*, *Aboth*, *Purah*, *Bacbuc*, which ſome Authors take for certain Meaſures; but they rather ſeem to have been the names of Veſſels of no determinate bigneſs.

The Account of the Hebrew *Veſſels according to* Joſephus, *taken from Biſhop* Hooper.

"THE Quantity of the *Jewiſh* concave Meaſures, as it is de-
"liver'd by the *Rabbins*, is uncertain. *Joſephus* the Hiſto-
"rian of that Nation gives a plainer account of them; and very
"conſiſtent with that he has made of the *Jewiſh* Weights; making
"them alſo equal to the *Attick*. He manifeſtly ſpeaks the *Log*
"equal to the *Attick Xeſtes*, when he expreſſes the quarter of a *Cab*
"(in the ſecond Book of *Kings*, *Chap.* 6. *ver.* 25.) by it: And likewiſe
"when he ſets a *Hin* of 12 *Logs*, at a par with an *Attick* double *Chous*
"of 12 *Xeſtes*: and alſo a *Bath* the ſame Meaſure for liquids (as
"appears from *Ezekiel* xlv. 11.) as an *Ephah* is for dry, and con-
"ſequently of 72 *Logi*, or 72 ſuch *Xeſtes*; not to add that he
"puts 10 of theſe *Ephahs* in a *Corus*, as equal to 10 *Medimni*:
"thoſe teſtimonies of equality in theſe Meaſures, are ſufficient to
"let us know, that the *Jewiſh* Veſſels of any certain number
"of *Logs*, were equal to the *Attick* of the ſame number of *Xeſtæ*;
"and that if there be an Expreſſion of one or two of them, that
"ſeems to import a difference; it muſt either be wrong read, or
"not right underſtood.

"An

"An *Omer* or *Gomer*, for Example, which is declared to be the "tenth of an *Ephah* in *Exodus*, and by the name of a Tenth-deal, "or *Aſſaron*, in *Numbers*; and can be nothing elſe but the tenth of "72 *Xeſtes*; or 7,2 *Xeſtes*; is yet under that very name expreſſed "in *Joſephus*, as he is now read, by 7 not *Xeſtæ* but *Cotylæ*. And "this Difference muſt, in all probability, have riſen by ſome error "of his Tranſcribers. *Epiphanius* giving an account of that *Aſſa-* "*ron*, makes it conſiſt of 7 *Xeſtes* and a fifth, which is exactly "its due quantity; and leaves us to ſuſpect, that in *Joſephus*, *Xe-* "*ſtes* at leaſt ſhould be read in the place of *Cotyla*; and with or "without a fraction, as the Author may be ſuppoſed to have de- "ſigned Exactneſs, or been content with a near ordinary Approach: "*Ordinary*, I ſay, becauſe tho' the fifth part of a *Xeſtes* being a "ſimple fraction, and Arithmetically regular; it is yet no proper "part of that Meaſure, nor can it be expreſſed by the lower Mea- "ſures. But *Theodoret*, on the other ſide, ſeems in his Copy to "have read *Cotyla*, as it ſtands now in ours. And if we therefore "chuſe to make no change, and take in the τρεῖς ἥμισυ κοτύλας "ἀττικὰς, which he cites as from *Joſephus*; we may then conjecture, "that the τρεῖς now in *Theodoret*, was an abbreviated τέσσαρες in "in a better Copy; and that δέκα before τέσσαρας had been once "read, and by this reckoning we then have 14 *Cotylæ* and a half, "or 14,5; which exceed the due quantity, 7,2 *Xeſtæ* or 14,5 *Co-* "*tylæ* but by the tenth of a *Cotyla*.

"Such various conjectures there may be about the expreſſion "of *Aſſaron* by *Joſephus*; and yet no Doubt remain concerning his "Intention to expreſs, in ſome manner, the ſame 7,2 *Logi*.

Of the Meaſures of Capacity of the moſt noted Eaſtern *Nations.*

BEſides the Meaſures of the *Romans*, *Greeks* and *Jews* already mention'd, there are thoſe of the *Perſians*, *Ægyptians*, *Syrians*, and *Arabians*, which I ſhall give ſome account of, ſince they frequently occur in the ancient Authors, as well ſacred as profane.

Of the Perſian *Meaſures.*

[a] Ἀχάνη is a *Perſian* Corn Meaſure, containing 45 *Attick Medimni.*

[b] Ἀρτάβη contain'd an *Attick Medimnus* and 3 *Chœnices.*

[c] Καπίθη was equal to 2 *Attick Chœnices.*

Of the Ægyptian *Meaſures.*

[d] Ἀρτάβη, among the *Ægyptians*, was equal to 3 ½ *Modii.*

[e] Ἀπόῤῥυμα, a Meaſure us'd only at *Thebes* in *Ægypt*, was equal to 11 ξέσης.

[f] Σαίτης was equal to 22 ξέσης.

[g] Οἴφιν was equal to 4 *Chœnices.*

[h] Ἰνίον an *Alexandrian* Meaſure contain'd 2 Pounds of Oyl.

Τευβλίον was equal to the *Cotyla.*

[k] The *Ægyptian Modius* was equal to 8 *Chœnices.*

Of the Syrian *Meaſures.*

[l] Μετρητὴς was equal to 120 *Sextarii.*

[m] Κόλλαθον was equal to 25 *Xeſtæ.*

Σαβίθα

[a] Interp. Ariſtoph. in Acharnenſibus. [b] Herodot. Suidas. [c] Xenoph. lib. 1. Anab. Cyri [d] Rhemnius Fannius. [e] Epiphan. [f] Idem [g] Heſychius. [h] Epiphanius. [k] Galenus ſeu Græcus iguotus. [l] Cleopatra. [m] Epiphanius. [i] Cleopatra.

[n] Σάβια was equal to 22 *Xeſtæ*.

[o] Χοῖνιξ a *Syrian* Meaſure mention'd by *Palladius*, the capacity not mention'd.

Of the Arabian *Meaſures.*

The knowledge of the *Arabian* Meaſures is neceſſary for thoſe who read the *Arabian* Phyſicians, ſuch as *Avicenna*, *Razes*, *Serapis*, *Meſue*, *Halyabbas*, &c.

[p] *Dorach* equal to the *Roman Amphora.*

[q] *Aldorach* equal to 2 *Xeſtæ.*

[r] *Johem* equal to the *Congius* of the *Romans.*

[s] *Kiſt* equal to the *Roman Sextarius.*

[t] *Korboni* equal to the *Hemina.*

[u] *Kiliathi* equal to one half of the *Cotyla.*

[x] *Keſtuf* equal to the *Acetabulum.*

[y] *Cuathum* equal to the *Cyathus.*

[z] *Falgerin* equal to the *Cochleare parvum.*

Briala, a Meaſure of uncertain capacity, mention'd by *Avicenna.*

Muſtarum, the greater equal to $\frac{1}{3}$ *Hemina.*

The Leſſer equal to $\frac{1}{3}$ *Cyathus.* A corruption of the *Greek* μύεγων.

Some other Meaſures not common, which are found in particular Authors.

[a] Ἀδδὶξ and ἀδδίξις, equal to 4 *Chœnices. Ariſtophanes. Interpres Homeri.*

Αἶε, the ſame with *Oxybaphum. Heſychius.*

Αλάβαεγον, equal to half the *Xeſtes. Epiphanius*

n Idem. o Serapio lib. 7. compendii. p Idem. q Avicenna in Breviario Vigilis. r Serapio. s Avicenna. t Idem. u Geor. Agricola ex Dioſcoride & Serapione. x Galen. lib. 8. de compoſ. Medic. & Serapio. lib. 5. y Geo. Agricola ex Dioſcoride & Serapione.

Αἰλις, the ſame as *Oxybaphum. Heſychius.*

Ἀξυσὴς, equal to the *Cotyla. Heſychius.*

Ἀξυτὴς, ſuppos'd equal to the former. *Dioſcorides.*

Ἀξύσιχος, equal to the *Cotyla. Euſtathius.*

Ἀξύταινα, a braſen Veſſel for holding Oyl. *Interpres Ariſtophanis.*

Βαίων, an *Alexandrian* Meaſure. *Heſychius.*

Βαναΐον, a Meaſure mention'd by *Heſychius.*

Βάφιον, a *Tarentine* Meaſure, equal to the *Acetabulum. Heſychius.*

Βάρβος, the ſame with *Myſtrum* in *Heſychius.*

Βίκος, a Wine Meaſure, the ſame with σάμνος. *Heſychius, Athenæus.*

Γάβενον, equal to the *Tryblion. Heſychius.*

Γάβαθον, the ſame with the former. *Heſychius.*

Γάμβειον, the ſame alſo as *Tryblion. Heſychius.*

Γνώμων, the tenth of an *Artaba. Epiphanius.*

Δάδιξ, equal to ſix *Chœnices. Pollux lib.* 4.

Δεῖνος, equal to a *Metretes. Athenæus lib.* 11.

Διπτία, half a *Medimnus. Heſychius.*

Δίπλουν, of uncertain capacity. *Heſychius.*

Δεξέξαι, a quarter of a *Xeſtes. Heſychius.*

Ελένιος, equal to the former. *Heſychius.*

Ἔλεφας, equal to three *Choes. Heſychius. Athenæus.*

Ἑκλαῖον, equal to ten *Cotylæ. Heſychius.*

Ἑκλαῖοι, *Heſychius.*

Εμβάφιον, equal to an *Oxybaphum. Heſychius.*

Επαμέτρημον, a *Cnidian* Meaſure, *Heſychius.*

Ἡμίεκλον, equal to four *Chœnices. Heſychius.*

Ἡμιόγδοον, equal to two *Choes. Heſychius.*

Ἡμιδωδέκατον, equal to half a *Chous. Heſychius.*

Ἡμικόλλιον, a Wine Meaſure. *Heſychius.*

Ἡμικύπελον, half a *Medimnus. Heſychius. Epiphanius.*

Ἡμίτιον, equal to four *Choes. Heſychius.*

Ἰνίον, an *Ægyptian* Meaſure, equal to two *Cotylæ*. *Cleopatra*.

Κάμαξψις, a Corn Meaſure equal to half a *Medimnus*. *Heſychius*.

Καμάσης, an uncertain Meaſure. *Heſychius*.

Κάναρον, mention'd by *Heſychius*.

Καπέτις χοῖνιξ, mention'd by the ſame.

Καμψάκης, a Meaſure or rather a Veſſel of uncertain bigneſs. *Epiphanius*.

Κόφινος, a Meaſure both of Liquids and Dry things. *Pollux*. *Heſychius*.

Κίσερος, mention'd by *Heſychius*.

Κύπερος, a Corn Meaſure, equal to half a *Medimnus*. *Heſychius*.

Κύπελος μόδιος, a Meaſure of 22 *Sextarii* according to *Epiphanius*.

Κολία, ſuppos'd equal to a *Chœnix*. *Heſychius*.

Κοτύλη, an *Epheſian* Meaſure of uncertain bigneſs. *Galenus*.

Κόνδυ, an *Aſiatick* Meaſure equal to ten *Cotylæ*. *Athenæus*. *Heſychius*.

Κυαθὶς, a Veſſel equal to the *Cotyla*. *Athenæus*.

Λάγυνος, equal to 12 *Cotylæ*. *Athenæus*.

Λεκὸς, equal to a *Tryblium*. *Heſychius*.

Λύτειον, a Meal Meaſure. *Heſychius*.

Λεύγη, a Milk Meaſure. *Heſychius*.

Μαβαλίδες, a ſort of Cup, ſuppos'd equal to a *Cyathus*. *Heſychius*.

Μάνης, an earthen Veſſel, holding 5 *Cotylæ*. *Athenæus*.

Μαεὶς, a Wine Meaſure. *Ariſtotle*. *Pollux*.

Μαεισὸν, equal to ſix *Cotylæ*. *Heſychius*.

Μναῖον, equal to two *Medimni*.

Μνᾶσις, a Corn Meaſure among the *Cyprians*, equal to 10 *Modii*. *Epiphanius*.

Ξέσης, that of *Alexandria* held two Pounds of Oyl. *Epiphanius*.

Ογδόα, equal to a *Semichœnix*. *Heſychius*.

Οἰνήυσις, a ſmall Wine veſſel. *Heſychius*.

Oluatium, a kind of Meaſure, mention'd by *Feſtus Pompeius*.

Orca, a large Veſſel for holding new Wine. *M. Varro, lib.* 3. *cap.* 13.

Οὐδρία, equal to half the *Metretes*. *Heſychius*.

Παλάνα, the ſame as *Tryblium*. *Heſychius*.

Πελάχνη, the ſame. *Heſychius*.

Πήρα, a Corn Meaſure. *Heſychius*.

Ποτὴρ, a certain Meaſure. *Heſychius*.

Πρόχοος, equal to a *Xeſtes*. *Heſychius*.

Ῥυτὸν, equal to three *Choes*. *Athenæus*.

Σμιρεὺς, a Meaſure for Wine: among the *Libyans*. *Heſychius*.

Τρυβλίον, of different bigneſs. *Heſychius*, *Cleopatra*, *Athenæus*.

Τῶπιν, equal to 10 *Chœnices*. *Heſychius*.

Τρίογδον, a *Tarentine* Meaſure. *Heſychius*.

Χυτρίδιον, a Meaſure mention'd by *Heſychius*.

Beſides the Tables formerly printed, I have given decimal ones of the Meaſures of Length and Capacity, for conveniency in computation. But in the *Jewiſh* Meaſures I have not follow'd Dr. *Cumberland*, but choſe rather to deduce their Meaſures of Length from the Cubit drawn from the Pyramid, and to deliver their Meaſures of Capacity according to the account of them given by *Joſephus*, which I prefer to that of the *Rabbins*. I have alſo given a Table of the ancient *Arabian* Weights which were uſed by their Phyſicians, which is neceſſary for any that reads them with accuracy: and from their writings are taken the Authorities on which that Table is founded.

There is likewiſe a Table of the *French* Weights; and one of thoſe of *Cologn*, which are us'd through all *Germany* in weighing Gold and Silver.

I have alſo given Tables (tho' not at large) of the Weights of the moſt noted Cities and Countries of *Europe*: and Tables of their Meaſures of Length, all from the beſt hands: and I choſe rather to omit thoſe of Places of leſs note, than to give ſuch as I could

could not recommend for their accuracy. There needs no further explication, the title of the Tables themſelves ſufficiently ſhewing what they are.

The Tables of the modern Coins were communicated by Sir *Iſaac Newton*, who has been always as induſtrious in promoting the publick good, as gloriouſly ſucceſsful in the Diſcoveries of Nature. They were calculated by that accurate perſon from actual Eſſays made in the *Royal Mint*, about the beginning of this Century, when Guineas went at 21 *s.* 6 *d.* So that the Value of Gold Coins muſt be now diminiſhed by one 43d part. In order to underſtand the Tables, the Reader muſt be inform'd, that one Pound Weight of *Sterling* Money contains 11 Ounces, 2 Pennyweight of fine Silver, and 18 Pennyweight of Alloy. The Gold Coin of *England* contains one 12th part of Alloy.

The firſt Column of the Table expreſſeth the Fineneſs of the eſſayed piece, the letter *B* ſignifying better, and *W* worſe than the *Engliſh* Standard. The ſecond Column contains the abſolute Weight of the piece, the third Column the Standard Weight, or its Quantity of Standard Metal. The fourth Column expreſſeth its value in *Engliſh* Money. For example in the ſecond article of Silver Coin, the *Sevil* piece of Eight, is 1 ; Pennyweight in the Pound worſe than the *Engliſh* Standard, weighs 14 Pennyweight, contains 13 Pennyweight 21 Grains and 15 Mites (of which there are 20 in the Grain) of *Sterling* Silver: and is in value 43 *Engliſh* Pence and 11 hundredths of a Penny.

A

DISSERTATION

Of ROMAN *Money Affairs.*

ALTHO' Examples proper for the application of the Tables occur frequently in all ancient Authors, yet to comply with the cuſtom of Publiſhers of Tables, and to ſhow the uſe of them to thoſe who are not daily peruſing ſuch Authors; it ſeemed neceſſary to add a Collection of Examples, which might accuſtom the Reader to ſuch Computations. I then conſidered that by the claſſing and methodizing ſuch paſſages, I might inſtruct the Reader in the Subject, as well as in the practice of the Numbers; which reflection was the occaſion of the following Diſſertation, if that be not too aſſuming a Title.

The Curious have thought the moſt minute affairs of *Rome* worth their notice; and ſurely the conſideration of their wealth and expences is at leaſt of as great importance as *Grammatical Criticiſms, Rites, Ceremonies, Figures of Vaſes, Inſtruments, various Shapes of habits*, &c. upon which the Learned have perhaps taken too much pains, which might have been better beſtowed upon the more manly enquiries into their Buſineſs, Arts; Profeſſions, Oeconomical and Political Management.

For ought I know, the following way of conſidering the Affairs of *Rome*, may be new. For thoſe who have wrote of their Luxury, have conſidered their Riches, Expences and Prices of Commodities only accidentally.

I do moſt ſincerely and without any affectation acknowledge my own incapacity to produce any thing perfect on the Subject, for want of knowledge as well as leiſure. I only beg thoſe worthy perſons who are better qualify'd for the undertaking by a ſufficient ſtock both of Learning and Time, not to be angry with me for having pointed out a new Subject, in which they may ſignalize themſelves.

The following Treatiſe is a Collection of ſome Articles, which may enable us to judge of the Wealth of *Rome* both private and publick, in regard to the quantity of current Species of Gold and Silver. In conſidering of which, theſe things naturally occur.

Firſt, The ſmall quantity of the Treaſure of *Rome* in its Infancy.

Secondly, What proportion of Treaſure *Rome* in its Grandeur contain'd, in reſpect of the richeſt trading Cities at this time in *Europe*, which one may call its abſolute Riches.

Thirdly, What proportion their circulating Species bore to the price of commodities, or number of Inhabitants, which one may call the relative Riches of *Rome*. In which ſenſe it has been doubted if *Rome* could properly be ſaid to be richer than ſome trading Cities now in *Europe*. But I believe the Reader will judge that it had the advantage in both Senſes.

Fourthly, There is ſtill another Conſideration: That as, I believe, there was in the time of the greateſt ſplendour of the *Roman* Empire, a leſs quantity of Current Species in *Europe*, than there is now, ſince the Diſcovery of the *Weſt-Indies*; *Rome* poſſeſſed a much greater proportion of the circulating Species of its time, than any *European* City ever did, and ſo may be ſaid likewiſe to be Richer in that third Senſe.

The Reader will obſerve in the following Examples, that the quantity of wealth was very different in *Rome* in different ages: to ſhew which, I have in ſome places mark'd the Chronology upon the Margin. He will likewiſe obſerve the ſame preciſe Sums in different Articles: for example, ſome great Eſtates equal to a Farthing,

Farthing, which proceeds from two Cauſes: Firſt, The *Romans* reckoning as we do in round ſums; ſuch a one is worth a hundred or two hundred thouſand Pounds: and ſecondly my being obliged to compute preciſely according to the Tables.

I hope the Reader will not imagine that I vouch for the truth of every matter of fact. I only ſet them down as they are in the Authors, and compute the Sums as faithfully as I can. Calculation is the propereſt Method either to ſupport Probability, or detect a Lye.

After all the care I have taken, it is poſſible there may be in ſuch a multitude of paſſages, ſeveral miſquoted, miſinterpreted, and miſcalculated, and a few I have taken from other Authors, who treated of the Subject. All I can ſay, the Reader will do himſelf a great deal of Service, and not in the leaſt diſoblige me, by ſetting any miſtakes of this nature right.

I have in a few places, as the Subject gave me occaſion, talked briefly of their Modes, Cuſtoms and Antiquities; about which I will likewiſe have no Diſpute with the Learned, but ſubmit moſt willingly to their Corrections.

I have been ſparing in drawing Parallels or univerſal concluſions, my chief deſign being only to ſtate matters of fact. Beſides I think it more reſpectful to the Reader to leave him ſomething to exerciſe his fancy and reflections upon, rather than pre-occupy his judgment. And indeed it is a ſubject in which, matters of fact being ſtated, a man of buſineſs who is uſed to Calculation, is a better Judge than the beſt Claſſical Scholar in the world without theſe qualifications. I am afraid that in avoiding prolixity I may have fallen into the contrary extreme; the whole almoſt runs on ſhort, like Articles in an Account: whereas if the Subject were fully explained, each of them might take up half a page. But mentioning the ſums without the Circumſtances, was ſufficient for my purpoſe.

The Collections I have made, and as I may ſay not only the Gleaning, but the plentiful Harveſt that is left behind, will I hope

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one day furniſh ſome abler pen with Materials to treat the Subject in a more ample and accurate manner. I have done what the Extent of my Work, Health and Buſineſs would allow.

I was ſo tired out with *Roman* Affairs, that I could not go on ſo methodically with thoſe of *Greece*; beſides I doubt if there be ſo good Materials to work upon: ſo in theſe I have only collected a few detached Articles ſufficient to exemplify the Tables.

I have produced likewiſe a few Examples out of the Scriptures, and any Reader who is curious may collect more. It is no Reflection on the Authority of the ſacred Text that Errors in Numbers have crept into it.

CHAP. I.

Of ROMAN *Eſtates.*

THE vaſt difference between the Riches of *Roman* Citizens in the Infancy and in the Grandeur of *Rome*, will appear by comparing the firſt *Cenſus* or valuation of Eſtates that was made in the reign of *Servius Tullius*, with the prodigious Eſtates that they afterwards poſſeſſed. X

[a] At the firſt foundation of *Rome*, 2 *Jugera*, or 1 ½ *Engliſh* Acres was an Eſtate. *Valerius Maximus* tells us that *Quinctius Cincinnatus* the *Dictator* (*A. U.* 292.) poſſeſſed 4 *Jugera*, 2 ½ Acres: and *Attilius Regulus* 7 *Jugera* or 4 ½ Acres (*A. U.* 498.)

Pliny (*lib.* 18. *c.* 3.) tells us that *Manius Curius* (*A. U.* 464.) ſaid he took one to be a dangerous Citizen who was not contented with ſeven *Jugera*, which was the quantity of Land aſſigned the *Plebeians* after the Expulſion of the Kings.

a Plin. lib. 18. cap. 2. Bina tunc jugera populo Romano ſatis erant, nullique majorem modum attribuit.

X See Smith p. 190. Langwith.

And long afterwards *M. Scaurus* the first Senator had only six Slaves, and his Estate was reckon'd 35 *Millia nummum*, or 282*l.* 11*s.* 0½*d.*

[b] At the first institution of the *Census*, the Valuation of Estates stood thus.

The 5th or lowest Class reckon'd at *Æris Millia* XI, 35*l.* 10*s.* 5*d.*

The fourth at XXV *Millia*; 80*l.* 14*s.* 7*d.*

The third at L *Millia*; 161*l.* 9*s.* 2*d.*

The second at LXXV *Millia*; 242*l.* 3*s.* 9*d.*

The First at C *Millia*; 322*l.* 18*s.* 4*d.*

[c] There was not a number amongst the ancient *Romans* beyond a hundred thousand. On the other hand, take but a view of the immense Estates of *Roman* Citizens in later times.

[d] *Apicius* was worth *millies Sestertium*; 807291*l.* 13*s.* 4*d.*

[e] *Crispus* a Burgher of *Vercelles*, *bis millies*, 1.614583*l.* 6*s.* 8*d.*

[f] *Crassus* the same; 1.614583*l.* 6*s.* 8*d.*

[g] *Demetrius*, a *Libertus* of *Pompey*, 4000 *Talents*; 775000*l.*

[h] *Pallas*, a *Libertus* of *Claudius*, *ter millies*; 2.421875*l.*

Seneca the Philosopher in four Years made *ter millies*; 2.421875*l.*

[k] *Lentulus* the *Augur* was worth *quater millies*; 3.229166*l.* 13*s.* 4*d.*

[l] *Pliny* relates that a private man, *C. Cæcilius Isidorus*, although he had lost much in the Civil war, left by will, 4116 Slaves, 3600 yoke of Oxen, of other Cattle 257000, and in ready money HS. $\overline{\text{DC}}$. that is *sexcenties Sestertium*; 484375*l.*

[m] The Riches even of Exiles grew so extravagant, that *Augustus* provided by a Law, that no Exile should possess above 20 Slaves and *Liberti*, nor in money above 12½ *Myriads* of *Drachmæ*; 4036*l.* 9*s.* 2*d.*

[n] In

[b] Livius lib. 1. [c] Pliny lib. 33. Non erat apud antiquos numerus ultra centum millia. [d] Seneca consolat. ad Helvium. [e] Vetus Interpres Juvenalis. [f] Plin. lib. 33. cap. 10. [g] Plutarch. in Pompeio. [h] Tacitus lib. 12. [i] Ibidem. Quâ Sapientia, quibus Philosophorum præceptis intra quadriennium regiæ amicitiæ termillies Sestertium paravisset. [k] Seneca lib. 2. de Beneficiis.

[l] Plin. lib. 33. cap. 10. C. Cæcilius Claudius Isidorus testamento suo edixit, quamvis multa civili bello perdidisset, tamen relinquere servorum quatuormillia centum sedecim; juga boum tria millia sexcenta, reliqui pecoris CC. quinquaginta septem millia: in numerato HS. $\overline{\text{DC}}$. [m] Dion. lib. 56. μήτε δούλοις ἢ καὶ ἀπελευθέροις, ὑπὲρ εἴκοσι χρῆσθαι, μήτ' οὐσίαν ὑπὲρ δώδεκα καὶ ἡμίσειαν μυριάδα ἔχειν.

[n] In the time of *C. Licinius* the Consul, *A. U.* 376. the limitation of Estates was 500 *jugera*, or 330 *English* Acres.

[o] And the old Law which allowed a man to possess no more in money than *Sexaginta Sestertia*, or 484 *l.* 7 *s.* 6 *d.* was changed by *Julius Cæsar*, who allowed the Sum to be 51 *Myriads* of *Drachms*, or 16468 *l.* 15 *s.*

The same gradual Encrease of Riches may be inferr'd from some accounts we have of Patrimonies and Women's Portions.

[p] The Patrimony of *Tacita*, × reckon'd very great, was only X. M. *Æris*; 32 *l.* 5 *s.* 10 *d.*

And even in the time of the second *Carthaginian* War, the Portions of *Scipio*'s Daughters were paid in full by the Publick XI. *M. Æris*; 35 *l.* 10 *s.* 5 *d.*

Megullia was styled the *Fortune*, because she had C. M. *Æris*; 322 *l.* 18 *s.* 4 *d.* †

[q] In later times a common Fortune for a Lady was *Decies Sestertium*; 8072 *l.* 18 *s.* 4 *d.* ||

[r] *Terentia*, *Cicero*'s wife, her Fortune was 12 *Myriads* of *Drachms*; 3875 *l.*

[s] And *Cicero*'s own Patrimony was 9 *Myriads* of *Drachms*; 2906 *l.* 5 *s.*

Pomponius Atticus got from his Father *vicies Sestertium*; 16145 *l.* 16 *s.* 8 *d.*

[t] *Cato Minor* his Patrimony was 100 *Talents*; 19375 *l.*

Servius in *Virgil*'s life saith he was worth *Centies H. S.* 80729 *l.* 3 *s.* 4 *d.*

Tully's Effects must have been very considerable, as will appear by some things that will be said afterwards: [u] he owns that he had in *Asia*, *bis & vicies*, 17762 *l.* 9 *s.* 4 *d.*

[n] Plutarch. in Camillo. [o] Dion. lib. 41. ἀπηγόρευσε μηδένα πλεῖον πεντακοσιακισχιλίων, καὶ μυρίων δραχμῶν ἐν ἀργυρίῳ, ἢ καὶ χρυσίῳ κεκτῆσθαι. [p] Val. Max. Tacita. Cæsonis filia, maximam dotem ad virum decem millia Æris attulisse visa est. [q] Juvenal Satyr 10. Mart. lib. 2. Epigr. 65. Tacit. Annal. 2. [r] Plutar. in Ciceron. [s] Cornelius Nepos. [t] Plutarch in Catone. [u] Ad H. S. bis & vicies Ego in Cistophoro in Asia habeo. Epist. ad Atticum lib. 11.

× Tacia. Val: Max: l. 4. c. 4 §10. Langwith.

† See Smith. 191. Langwith.

|| Vide Juven. Satyr X. 335. Langwith.

Great debts, as they are the effect of great credit, are an indication too of great riches, ſome inſtances of which are as follow.

[x] *Curio* is recorded for contracting a debt to the value of *Sexcenties Seſtertium*; 484375 *l.*

[y] *Apicius* after having ſpent in his Kitchen *millies H. S.* 807291 *l.* 13 *s.* 4 *d.* and ſquander'd immenſe Grants and Penſions, being forced at laſt to look into his Accounts for the firſt time, found he had a ſmall remain of *Centies H. S.* 80729 *l.* 3 *s.* 4 *d.* which thinking too little to afford the neceſſaries of life, he poiſoned himſelf for fear of ſtarving.

[z] *Tigellius* a Singer could ſpend in five days *Decies H. S.* 8072 *l.* 18 *s.* 4 *d.*

[a] One *Munna* is chaſtiſed by *Martial* for ſpending in leſs than a year *bis decies*; 16145 *l.* 16 *s.* 8 *d.*

[b] *Macrobius* ſpeaks of a *Roman* Knight who could run in debt *bis decies*; 16145 *l.* 16 *s.* 8 *d.*

According to a *Latin* Tranſlation of *Appian*, *Cæſar*'s debt before he had been in any Office abroad, was 2.018229 *l.* 3 *s.* 4 *d.*

[c] But according to a various Reading in a *Greek* Manuſcript of the ſame Author, it was 2500 *Myriads*; 807291 *l.* 13 *s.* 4 *d.*

Cæſar himſelf owns, he wanted this Sum to be worth nothing; he had contracted this debt before he had any foreign Command.

Plutarch ſaith, that before he had been in any publick Office at home, he owed 1300 *Talents*; 251875 *l.*

[d] *Craſſus* was his Surety for 830 *Talents*; 160812 *l.* 10 *s.*

[e] *Milo* contracted debts to the ſum of *Septingenties H. S.* 565104 *l.* 3 *s.* 4 *d.*

[f] *Antony*

[x] Curio filius conflaverat Æris alieni Seſtertium ſexcenties. Val. Max. lib. 9. X

[y] Cum ſeſtertium millies in Culinam congeſſiſſet, Principum ingens Capitolii vectigal ſingulis commeſſationibus hauſiſſet, Ære alieno oppreſſus, rationes ſuas tunc primum coactus inſpexit, ſuperfuturum ſibi ſeſtertium centies computavit, & veluti in ultima fame victurus, ſi in ſeſtertio centies vixiſſet, veneno vitam finivit

[z] decies centena dediſſes
Huic parco paucis contento, quinque diebus
Nil erat in loculis. Horat.

[a] Biſque tuum decies non toto tabuit anno,
Die mihi, non eſt hoc Munna perire cito.

[b] Macrobius lib. 2. Saturn.

[c] δισχιλίων καὶ τετρακοσίων μυριάδων, ſubintelligitur ἀργυρίων.

[d] Plutarch in Cæſare.

[e] Milonem ſeſtertium ſeptingenties æris alieni debuiſſe, inter prodigia animi humani duco. Plin. 16. cap. 15.

X Val: Max lib. IX. C. 1. §6. Langwith

[f] *Antony* at the *Ides* of *March* owed *Quadringenties H. S.* 3229161. 13 *s.* 4 *d.* which he paid before the *Kalends* of *April*.

Plutarch tells us that *Otho* before he was Emperor, run in debt 5000 *Myriads*; 1.602083 *l.* 6 *s.* 8 *d.*

I ſhall beg leave to make a few obſervations upon the Eſtates of ſome perſons celebrated by Authors for their Wealth.

Tho' there has been much talk of the Riches of *Craſſus*, they were inferior to thoſe of *Pallas* the *Libertus* of *Claudius*. *Craſſus* had left him by his Father 300 *Talents*, or 58125 *l.* which [g] *Plutarch* ſaith he improv'd to 7100 *Talents*, or 1.375625 *l.* and this Sum he had before he led his Army againſt the *Parthians*. He was reckon'd a covetous fellow, becauſe he had a ſingular faculty of turning War and publick Calamities to his own profit. And yet he gave to the people at once a *Teſſera Armonaria trium menſium*, a victualling Ticket for three Months.

He kept a great *decorum* in matters of Religion, for he conſecrated the tenth of his Eſtate to *Hercules*, I ſuppoſe as *Lewis* the XIth did the Seigniory of *Bologn* to the *Virgin Mary*, that no body might touch it. He was likewiſe a great Encourager of Trade and Manufacture; for he educated, maintained and let out men of all Arts and Profeſſions. He did not employ all his money in Uſury, but purchas'd a very conſiderable Land Eſtate, according to *Pliny*. *In agris bis millies poſſedit, Quiritum poſt Syllam ditiſſimus.*

So the valuation of his Land Eſtate by *Pliny* is 1.614583 *l.* 6 *s.* 8 *d.*

I think as the World goes he was a good ſort of man enough.

To compare his Eſtate with that of *Pallas* the Freeman of *Claudius*. The Reader muſt be inform'd that [h] *Claudius* had two Freemen, *Pallas* and *Narciſſus*. The firſt was *à Rationibus*, which I tranſlate Privy-Purſe: the ſecond *ab Epiſtolis*, his private Secretary. Their Riches grew to a Proverb.

—— *Ego*

[f] Quadringenties H. S. quod Idibus Martiis Antonius debebat, ante Calendas Aprilis debere deſiit. Cicer. Phil. 2da. [g] Plutarch in Craſſo. [h] Sueton. in Claudio.

——— *Ego poſſideo plus*
Pallante & Licinis ——— Juvenal.
Nec Cræſi fortuna unquam nec Perſica Regna
Sufficient animo, nec divitiæ Narciſſi
Indulſit Cæſar cui Claudius omnia. Idem.

Pallas's Eſtate, as the Reader may ſee before, amounted to 2.421875 *l.* And as a reward of his virtuous frugality, [i] he received by a *Senatus Conſultum* mention'd by *Tacitus*, and *Pliny* the Orator, *Centies quinquagies H. S.* 121093 *l.* 15 *s.* which was razed out of the Records afterwards by *Juſtinian. ſub Tit. de Senatus Conſulto Claudiano.* That Sum muſt be added to the former mention'd. There was another pretence beſides his frugality for that gift, for he inform'd the Senate of the Slaves that lay with their Women, I ſuppoſe Wives and Miſtreſſes. There is mention'd a third, one *Caliſtus* a Freeman of the ſame Emperor, perhaps he had got a Million.

It is an obvious Remark, from the particulars above mention'd, that the private Eſtates of *Rome* grew with their Dominions. The parts of a great thing are great, and there are proportionably large Eſtates in a large Country.

There were ſome of very low Rank and Profeſſions, who acquir'd great Eſtates. Coblers, Dyers and Shoemakers gave publick Shows to the People.

Sutor Cerdo dedit tibi, culta Bononia, munus,
Fullo dedit Mutinæ: nunc tibi caupo dabit. Mart. lib. 3. Ep. 59.

Vatinius a Shoemaker's Apprentice gave to *Nero* himſelf a famous Spectacle of *Gladiators* at *Beneventum*, of whom *Tacitus*, ſaith *Inter fœdiſſima aulæ ejus oſtenta fuit, ſutrinæ tabernæ alumnus, corpore detorto, facetiis ſcurrilibus, primo in contumelias aſſumptus, deinde optimi*

[i] Tacit. lib. 12. Fixum eſt Ære publico Senatus conſultum, quo libertinus H. S. ter millies poſſeſſor, antiquæ parſimoniæ laudibus cumularetur.

timi cujuſque criminatione eouſque valuit, ut gratia, pecunia, nocendi etiam malis præemineret.

Criſpinus was an *Ægyptian* Slave rais'd by *Domitian*, of whom *Juvenal* Satyr 1.

Cum pars Niliacæ plebis, cum verna Canopi
Criſpinus, Tyrias humero revocante lacernas
Ventilet, æſtivum digitis ſudantibus aurum.

Cynamus a Barber acquir'd a greater Eſtate than any Nobleman in *Rome*, and was at laſt condemn'd only to *Equeſtrian Cenſus*, and baniſh'd into *Sicily*.

Qui tonſor fueras tota notiſſimus Urbe,
Et poſthac dominæ munere factus Eques, &c.
Non Rhetor, non Grammaticus, Ludive magiſter,
Nec Cynicus, non tu Stoicus eſſe potes:
Vendere nec vocem Siculis, plauſumque Theatris,
Quod ſupereſt iterum, Cyname, tonſor eris. Mart.

Licinius mention'd likewiſe by the *Satyriſt*, as the old *Scholiaſt* relates, was a young Slave, of ſo ſaving a Temper, that he let out the Offals of his meat to intereſt, and kept a Regiſter of ſuch Debtors in his Pocket-book; he was afterwards made a Collector in *Gaul*; where he acquir'd, as *Perſius* expreſſes it, *Agros, quantum Milvi volant*, a Hawk's flight of Lands: for it ſhould be read *Agros* inſtead of *Nummos*.

The riches and profuſion of the Emperors are a Subject too large for the preſent Diſſertation. *Claudius*, as *Euſebius* relates in his *Chronicle*, employ'd 30000 Men for 11 years to drain the *Fucin* lake. The Reader will meet with ſeveral inſtances of the prodigality of the *Roman* Princes in the ſequel of this diſcourſe. The effect of which profuſion was a proportional rapacity. *Caligula* had both qualities in extream degrees; for, as *Suetonius* relates of him,

him, he us'd to walk and roll himſelf on heaps of Money, *nudis pedibus ſpatiatis, corpore volutatus.* *Nero* gave one ſhort inſtruction to his Tax-maſters, *Scis quid mihi opus eſt, hoc agamus ne quis quidquam habeat.* What he had occaſion for was, that no body ſhould have any thing left. The *Romans* had a great many pretty words to expreſs the pillaging of Provinces, *exſugere, corradere, deglubere, exoſſare,* which we have hardly *Engliſh* ſignificant enough to tranſlate. *Varro*'s Quibble I think was but an indifferent one. *Cum ſociis ita bellum geris, ut bella omnia domum auferas,* alluding to their diſtraining the furniture of houſes.

Thus in that great Empire Corruption begat Slavery, Slavery produc'd worthleſs and rapacious Favourites, thoſe begat Oppreſſion and Poverty; Poverty and Oppreſſion Depopulation, and want of Zeal and Affection in thoſe that remain'd, and from all theſe cauſes at laſt proceeded the final deſtruction of this mighty Empire. Corruption is a *Cancer* in the Body politick, ſcarcely admitting of any Cure, not even ſo much as Amputation.

CHAP. II.

Of the Prices of Bread-Corn.

THAT *Rome* in its Grandeur contained more Treaſure and Wealth of all kinds, Citizens of greater Riches and Expences than any *Europæan* City ever did, perhaps will be readily granted; this, as I hinted before, may be called the abſolute wealth of *Rome.*

As to the relative wealth of *Rome,* that is the proportion of circulating *Species* to the number of Inhabitants, or the quantity of Commodities, it hath been doubted whether *Rome* in that Senſe were as rich as ſome trading Cities in *Europe* are at this time.

The middle or common prices of Commodities, which mankind have the ſame uſe for in all ages and times, ſeem to be the true Meaſure for aſcertaining the quantity of circulating money in any time or place, and there is no other ſo proper as Bread-corn. I ſhall therefore give the Reader a ſhort view of the price of Bread-corn as it was in *Rome* at ſeveral times.

Rome indeed by the care of the Magiſtrates was generally well provided with Corn, which was often given to the people for nothing, or at a very moderate price. [a] *Minutius Augurinus* the eleventh *Tribune* of the People,[X] brought the price of Meal in three Markets, to an *As* for every *Roman Modius*, or 0 *d.* 3 $\frac{1}{10}$ *q.*

Which, conſidering the difference betwixt our Peck and their *Modius*, will make *per* Quarter 2 *s.* 0 *d.* 1 $\frac{1}{2}$ *q.*

[b] Corn was given to the people at the ſame price by *Manius Marcius*, *viz.* per Quarter, at 2 *s.* 0 *d.* 1 $\frac{1}{2}$ *q.*

But as I hinted before, this could not be reckoned a current price, becauſe (as the quotation mentions) it was in a manner beſtowed: beſides it was in early days, when money was ſcarce.

[c] *Clodius*, when *Tribune*, made a Law, that Corn ſhould be given to the people *gratis*, which was before, ſold the *Modius* for *Senis Æris ac trientibus*, at which rate the Quarter comes to 16 *s.* 3 *d.* 2 *q.*

[d] *Cicero* introduces *Verres* bragging that Wheat was at two *Seſtertii* the *Modius*, which makes the Quarter 10 *s.* 2 *d.* 1 $\frac{1}{2}$ *q.*

[e] He tells you, that there were two prices for the Corn bought up in *Sicily*, three *Seſterces* the *Modius* for the *Decumanum* or Tith-Corn, that is *per* Quarter 15 *s.* 3 *d.* 1 $\frac{1}{2}$ *q.*

And four *Seſterces* for the *frumentum Imperatum*, that is *per* Quarter 1 *l.* 0 *s.* 4 *d.* 2 $\frac{1}{2}$ *q.*

[a] Minucius Augurinus, qui Sp. Melium coarguerat, farris pretium in tribus Nundinis ad aſſem redegit undecimus plebei Tribunus. Plin. lib. 18. cap. 3. [b] Plin. ibid. Manius Marcius Ædilis plebis primum frumentum populo in modios aſſibus donavit. [c] Plinius. [d] Cicero in frumentaria Verrina. [e] Cicero ibid. Ex Senatus conſulto & ex lege Terentia & Caſſia, Frumentum emundi duo genera fuerunt, unum certarum Decumarum, alterum quod præterea Civitatibus æqualiter eſſet diſtributum. Illius Decumani tantum quantum ex primis Decumis fuiſſet, hujus imperati Tritici Modii DCCC millia. Pretium autem conſtitutum Decumano in Modios ſingulos, H S. III; imperato H. S. IIII.

X So indeed Pliny calls him, but Livy brings good arguments to prove there was no such thing. Liv: L. IV. c. 16. Langwith.

The Tith-Corn, I ſuppoſe, was conſtantly rais'd at a certain rate, and the *Imperatum* laid on by a certain diſtribution upon the ſeveral Cities, as occaſion required.

[f] *Verres* is accuſed for exacting *duodenos ſeſtertios in modios ſingulos*; this would bring the Peck to 1 *s.* 10 *d.* $3\frac{7}{10}$ *q.* and the Quarter to 3 *l.* 1 *s.* 1 *d.* $2\frac{4}{7}$ *q.*

[g] Afterwards the ſame Author expreſſeth the price of the Tith-Corn by the *Medimnus Georgicus* which contains ſix *Roman Modii*, which makes it *per* peck, 5 *d.* $2\frac{12}{13}$ *q.* and *per* Quarter, 15 *s.* 3 *d.* $1\frac{1}{7}$ *q.* the ſame as before.

[h] He is ſo particular as to tell the Sum which was remitted to *Verres* for the *Frumentum imperatum, viz. H. S. II. & tricies*, or 258333 *l.* 6 *s.* 8 *d.*

By the great acceſs of Riches and increaſe of money that happened afterwards, eſpecially in the reign of *Auguſtus*, the prices of Corn as well as every thing elſe were raiſed at *Rome*.

[i] *Tacitus* relates that after the burning of *Rome* by *Nero*, it was a great conſolation to the people to have the price of the corn reduced to 3 *nummi*, *viz.* the *Modius*, or *per Engliſh* Peck, 5 *d.* $2\frac{12}{13}$ *q.* This was the ancient price, and reckon'd very low at that time; for the prices of Flower and Bread mentioned by *Pliny* are much higher: [k] he tells us that the Bread made of a *Modius* of coarſe Flower coſt 40 *Aſſes*; of that which was entirely purged from the Bran, or very fine flower, 48 *Aſſes*; and what was made of the Flower of the *Siligo*, or the fineſt of all, was double of the firſt. If we proceed according to our *Engliſh* manner, it will make the Peck of the cheapeſt or houſhold Bread worth 2 *s.* 6 *d.* $2\frac{1}{7}$ *q.*

That of the Wheaten Bread worth 3 *s.* 0 *d.* $2\frac{1}{7}$ *q.*

And the fineſt 5 *s.* 1 *d.* $0\frac{1}{7}$ *q.*

Harduin explains the words in the ſame paſſage of *Pliny*, *Panis vero e modio Similaginis CXXII. e Floris modio CXVII.* of ſo many

[f] Cicero in Verrina frumentaria. [g] H S. XVIII. Frumentum Sicilienſe ex lege æſtimatum eſt. Cicer. ibidem. [h] H S. II. & tricies Verri decretum in frumentum imperatum in annos ſingulos. Cicero ibid. [i] Pretiumque frumenti minutum uſque ad ternos nummos. Tacit. Annal. 15. [k] Pretium huic annonâ mediâ in modios farinæ, XL aſſes: ſimilagini caſtratæ octonis aſſibus amplius, ſiligini caſtratæ duplum. Plinius lib. 18. cap. 10.

many pound weight of Bread; but the paſſage muſt be either erroneous in the numbers or mean ſomething elſe, for in the paragraph before, *Pliny* ſpeaking of the weight of Bread that could be made of a *Modius* of *French* and *Italian* Flower, hath this Paſſage, *Siligineæ farinæ modius Gallicæ XXII. libras panis reddit, Italicæ duabus tribuſve amplius in artopticio pane.* Therefore CXXII pound of Bread of a *Modius* of Flower is an impoſſibility, the C is either redundant, and it ſhould be read XXII pound; or ſomething elſe than *Modius* muſt be underſtood. X

The *Engliſh* Bakers make of a Peck of our Flower 18 pound of Bread at moſt. The weight of the Peck loaf by the Lord *Mayor*'s order is 17 *lb.* 6 *oz.* 1 *dr. Averdupois*; ſuppoſing eighteen pound *Averdupois* made of our Peck, according to the *Roman* Meaſure and Weight, it will make of the *Roman Modius*, about 24 *Roman* Pounds, which agrees with *Pliny*'s account.

The Aſſize of Wheaten Bread in *London* is pretty near as 3 to 5, that is, when Wheat is 15 pence the Peck, the Peck loaf is ſold for 25 pence. The price of the middle ſort of Bread, which anſwers to our wheaten, according to *Pliny*, is 3 *s.* 0 *d.* 2½ *q.* which, reckon'd according to the forementiond proportion, will make Wheat *per* Quarter at 3 *l.* 3 *s.* 6 *d.* as the common or middle price.

The great difference of the ſeveral prices of their Bread, much exceeding the difference of the prices of ours, proceeded from their great delicacy in Bread, and perhaps ſomething in their manner of baking. *Pliny* reckons four ſorts of Bread, the *Oſtrearii*, or Loaves baked with Oyſters; *Artolagani*, which anſwered to our Cakes; *Speuſtici*, a σπεύδω, from their quick way of preparing; and *Artopticii* ſuch as were baked in Ovens, called ſo from the furnace in which they were baked.

The paſſage above mentioned is to be underſtood of this laſt Bread.

By the laſt prices of Bread, it ſeems that about the time when *Pliny* wrote, Corn was conſiderably dearer in *Rome* than commonly at *London*; and it is evident that the prices of commodities were

X I take the C to ſignify Circa. See Sertorius Urſatus. It was expreſſed thus loosely upon account of the different weights of the Modii of different Countries. The Librarians miſtook it, and made it ſtand for Centum inſtead of Circa. Longwith.

low in early Times, and roſe gradually in *Rome* by the encreaſe of Money, as they have done in *France*, *England*, and other Countries of *Europe*.

CHAP. III.

Of the Price of Wine.

WINE ſeems to have been always cheap at *Rome*. There is in *Pliny* × a remarkable paſſage concerning the price of Wine; he ſaith [1] in the Conſulate of *Opimius*, *A. U.* 633, there being an excellent Vintage, Wine was laid in according to the rate of that time at 100 *Nummi* the *Amphora*, (which containing ſeven Gallons, and one Pint; 10,66 ſolid Inches) or, 16 *s.* 1 ½ *d.* this will make it *per Engliſh* Hogſhead, 7 *l.* 1 *s.* 10 *d.* which is a higher price than ſome that are mention'd in other Authors. *Pliny* proceeds, and reckons when this Wine was drank 160 Years afterwards, by reaſon of the intereſt of money which was 6 *per Cent.* it came to two *Nummi* the *Cyathus*, or 3 *d.* 3 ¼ *q.* †

This paſſage is not only curious on the account of the price of Wine, but it is an inſtance of the *Roman* manner of computing intereſt at that time, which was neither ſimple nor compound intereſt reckon'd at every term of payment, but of a lower Rate; for after 101 Months they added ſix *per Cent.* to the Principal, beſides the ſimple intereſt that was due upon the Sum, which they called *Anatociſmus*; ſo it is named by *Cicero*. To examine whether *Pliny* reckoned right: in 160 Years there are

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1 Opimio Conſule, cum C. Graechus Tribunus plebem ſeditionibus agitans interemptus: ea cæli temperies fulſit, quam cocturam vocant, ſolis opere, natali Urbis 633. Durantque adhuc vina ducentis fere annis, jam in ſpeciem redacta mellis aſperi. etenim hæc natura vinis in vetuſtate eſt; nec potari per ſe queunt, ſi non pervincat aqua, uſque in amaritudinem carie indomita. Sed cæteris vinis commendandis minimâ aliquâ mixtu à medicamenta ſunt: quod, ut ejus temporis æſtimatione in ſingulas Amphoras centeni nummi ſtatuantur, ex his tamen, uſura multiplicata ſemiſſibus, quæ civilis ac modica eſt, in Caii Cæſaris Germanici filii principatu, anno 160. Singulas uncias binis (ita Budæus legit) conſtitiſſe, nobili exemplo docuimus.

× Lib: XIV. C. 4. Langwith.

† This is by no means right: Pliny does not mention the Cyathus but the Ounce, and it is easy to prove that the Cyathus exceeds the Ounce by almost half, being to it as 1 to 0,61. Langwith.

1920 Months, which if you divide by 101, it gives 19 *Anatociſmii*, which makes the Sum due by the *Anatociſmi* 114: 100 *Nummi* principal and intereſt at *6 per Cent.* after 160 years, make 1060, to which if you add 114, it makes 1174. There are 576 *Cyathi* in an *Amphora*, which at 2 *Nummi* the *Cyathus*, make 1152 *Nummi*, which wants only 22 *Nummi* of the Sum. And if you reckon that *6 per Cent.* to bear Intereſt 18 times, it will add 17 *Nummi* to the Sum, which make it only 5 *Nummi* ſhort of *Pliny*'s account.

This would make the *Engliſh* quart of the *vinum opimianum* amount to 13 *s.* But this proceeded from an accidental reaſon of the intereſt of the money firſt laid out.

The prices of Wines at the vineyard were much lower than that of the *Opimium*, [m] for *Columella* ſaith, that the very worſt ſort of Vineyards would produce *per Jugerum*, a *Culeus* of Wine; that is, about $\frac{1}{3}$ of an *Engliſh* Acre produced 143 Gallons and 3 Pints; which was ſold for 300 *Nummi*, that is 2 *l.* 8 *s.* 5 $\frac{1}{4}$ *d.* at this rate the Hogſhead comes to 1 *l.* 0 *s.* 11 *d.*

But it muſt be conſidered that this is at the Vineyard, the worſt Ground and the worſt Wine. It will be fair to reckon double that price for the common Wine, or about 8 *l. per* Ton.

[n] *Cicero* ſtates the Cuſtom exacted for Wine at *Toulouſe*, 4 *Nummi* the *Amphora*, which *per* Hogſhead comes to be 1 *l.* 2 *s.* 8 $\frac{1}{2}$ *d.*

There are very low prices mentioned by Authors, as that by [o] *Martial*, making it *per* Gallon about 2 *d.* and Corn a Peck at 3 $\frac{1}{2}$ *d.* But thoſe are mentioned as extravagantly cheap, and poetically.

There are likewiſe recorded times of prodigious plenty, which cannot be drawn into any Rule, as that ſpecify'd by [p] *Pliny*, when 12 Pounds of Oyl was ſold for an *As*; and likewiſe at the Triumph of *Metellus*, when near an *Engliſh* Gallon of Wine, 30 *Roman* Pounds *A. U.* 600.

[m] Quippe ut deterrimi generis ſunt vineæ, tamen ſi cultæ ſint, ſingulos utique culeos vini ſinguia eorum jugera peræquabant. urque trecentis nummis Quadragenæ urnæ veneunt (quod minimum pretium eſt annonæ) conſument tamen ſeptem Culei ſeſtertium duo millia & centum nummos. Columel. lib. 3.

[n] Quaterni Denarii in ſingulas Amphoras portorii nomine exacti Toloſſæ. Cic. pro M. Fonteio.

[o] Amphora vigeſſis Modius datur Ære quaterno. Mart.

[p] Plin. lib. 15. cap. 3.

Pounds of dryed Figs, ten pound of Oyl, 12 Pounds of Fleſh, and a Peck of Meal, were ſold each at an *As*, or 3 ½ *q*.

[q] *Anno Urbis* 675, *Greek* and *Aminium* Wines were forbid to be ſold for 8 *Aſſes* the *Quadrantal*, or *Amphora*, that is for leſs than one penny the Gallon; but this was for a particular reaſon.

CHAP. IV.

Of the Price of Cattle.

I Can diſcover very little of the price of Cattle amongſt the ancient *Romans*. [a] In early times the price of a good Calf, was 25 *Aſſes*, 1 *s*. 7 ½ *d*.

[a] The price of a Sheep, a *Denarius*, or 7 ½ *d*.

[a] The price of an Ox ten times as much, that is 6 *s*. 5 ½ *d*.

But theſe prices muſt have been afterwards very much increaſed, for *Varro* ſpeaking of the price of a Peacock, ſaith † that it was above the price of a Sheep, which at leaſt is an argument that a Sheep was not much ſhort of the price of a Peacock, and this was 50 *Denarii*, or 1 *l*. 12 *s*. 3 ½ *d*.

The *Roman* Fines or Penalties exacted by Law had ſtill a Relation to thoſe original prices of Cattle, and were very gentle at firſt, and continued ſtill to be ſo from the nature of their Government. Their effects at firſt conſiſted chiefly in Cattle, publick plunder retained the name of *Peculatus*.

The loweſt fine of all was a Sheep, or 7 ½ *d*.

[b] The Fine for a private injury, a Calf, or 1 *s*. 7 ½ *d*.

[c] The

[q] P. Lucinius Craſſus & Julius Cæſar Cenſores A. U. DCLXXV. edixerunt ne quis vinum Græcum, Aminiumque, octonis Æris ſingula Quadrantalia venderet. Plin. lib. 14. c. 14.

[a] Epicharmus apud Pollucem, Feſtus Pompeius.

† Eoſque cum creverunt (pullos nempe pavonum) quinquagenis denariis vendit, ita ut nulla ovis hunc aſſequatur fructum.

[b] Aſſes viginti quinque pœnæ ſunt, ſi quis alteri injuriam facit. Gell. lib. 26. cap. 1.

[c] The rate of the higheſt Fine was 30 Oxen, and two Sheep, or 3020 *Aſſes*, that is 9*l.* 15*s.* 0½*d.* from which *Gellius* obſerves, that Oxen were more numerous than Sheep, and I am told it is ſo at this time in *Italy*.

[d] The Regard had to that rate of fining, was conſider'd even in the time of *Juſtinian*; for the Judges under Proconſular Authority were forbid to fine above a *Quadrans* of a pound of Gold, which according to the value at that time was 9*l.* 15*s.* 0½*d.*

Thoſe who had Proconſular authority, could fine *auri ſemiſſem*, or double the former Sum. It was allowed to the *Præfectus Prætorii* to fine as far as 50 pounds of Gold, not ſo much with regard to the Dignity of his office as the Atrocity of the fact.

[e] *Gellius* tells us, there was an exception from the uſual gentle rate of fining in the caſe of a Lady, who for the incivility of her Speech was fined *XXV. M. Æris X millia* 80*l.* 14*s.* 7*d.*

[f] *Seſtertiorum X millia* was likewiſe the Fine for laying one's Tail in the Fountain of an Aqueduct, making 80*l.* 14*s.* 7*d.*

[g] Cities were fined pretty high, *Rhodes* by *Brutus* was fined 500 *Talents*, 96875*l.*

I have been induced by the price of Cattle to ſay ſo much of the rates of Fines, from this ſmall relation it had to the ſubject of Cattle.

To return to the price of Cattle: As to horſes, *Livy* [h] tells us that there were 10000 *Aſſes* given out of the publick money to the *Equites* to buy horſes, and that the Widows were oblig'd to contribute towards their keeping the Sum of 2000 *Aſſes* yearly.

If, as it is commonly ſuppoſed, there were two horſes, the price of them was 32*l.* 5*s.* 10*d.* or, *per* Horſe, 16*l.* 2*s.* 11*d.*

And

[a] Gellius, lib. 11. Noctium Atticarum.

[d] Lege ultima de modo mulctarum in Codice Juſtiniano.

[e] Gell. lib. 9. De Appii Cæci filia. Ob hæc mulieris verba tam improba ac tam incivilia, Ædiles Plebei multam dixerunt ei Æris gravis XXV millia. Id factum bello Punico primo.

[f] Seſtertiorum dena millia multa eſto, ſi quis aquam Aquæductus dolo malo oletaret, ubi publice ſalit.

[g] Plut. in Bruto.

[h] Ad equos emendos dena millia Æris ex publico data; & quibus equos alerent, viduæ attributæ, quæ bina millia Æris in annos ſingulos penderent. Livius lib. 1.

And their feeding came yearly to 6*l.* 9*s.* 2*d.* which is *per* Horſe, 3*l.* 4*s.* 7*d.*

Theſe ſeem to be pretty high rates for that time, tho' much inferior to the prices of horſes afterwards. [i] *Gellius* mentions one ſold for 100 *Seſtertia*, 807*l.* 5*s.* 10*d.*

[k] The price of *Bucephalus* was 13 *Talents*, 2518*l.* 15*s.*

[l] *Pliny* relates from *Varro*, that a Jack-Aſs for a Stallion was bought for 3229*l.* 3*s.* 4*d.* [m] And that in *Celtiberia*, a Province of *Spain*, a She-Aſs has brought Colts to the value of 3229*l.* 3*s.* 4*d.*

[n] *Varro*'s price indeed is much inferior to that of *Pliny*, he ſpeaks of an Aſs ſold in his own time at *Rome*, for 60000 *H.S.* 484*l.* 7*s.* 6*d.*

By the above-cited paſſage of *Varro*, it appears that the price of a Sheep was ſomewhat under that of a Peacock, *viz.* 1*l.* 12*s.* 3½*d.* Suppoſe we fix it at 25 Shillings a Sheep, or 25 Pound the Score; according to the fore-mention'd proportion of a Bullock being ten times as dear as a Sheep, the price of one will be 12*l.* 10*s.* and that of a Calf will come out 3*l.* 2*s.* 6*d.* ſince it was 1*s.* 7½*d.* when the price of a Sheep was 7½ pence, or as 5 to 2. This will make the price of Butcher's meat in *Varro*'s time not much different from what it is in *London*.

[i] Gell. lib. 3. cap. 9. [k] Gellius lib. 5. cap. 2. [l] Plin. lib. 8. cap. 43. Aſinum CCCC.M nummum emptum, Quinto Axio Senatori, auctor eſt M. Varro, haud ſcio an omnium pretio animalium victo. [m] Plin. ibid. [n] Varro lib. 2. cap. 1. Tertia pars eſt, quo ſint ſeminio quærendum. Hoc nomine enim Aſini Arcadici in Græcia nobilitati, in Italia Reatini, uſque eo, ut meâ memoriâ aſinus venierit ſextertiis millibus LX.

CHAP.

CHAP. V.

Of the Roman *Expences in Eating.*

WE have been able, as appears by the former Chapter, to diſcover ſomewhat, at leaſt by inference, of the common prices of Butcher's meat; and as to Fowl and Fiſh, Authors take little notice of the common prices, but only mention thoſe that are extravagant.

Fowl. [a] I find that *Turdi*, fat Birds, which we commonly tranſlate Thruſhes (but of which there are ſeveral ſorts) were ſold a-piece at 3 *Denarii* 1*s.* 11½*d.* they were in great reputation, and uſed in Feaſts.

[b] Peacocks were ſold dear, the price of one was 50 *Denarii*, 1*l.* 12*s.* 3½*d.*

[b] A flock of a hundred was ſold at a much dearer Rate, for *XL M. H. S.* or 322*l.* 18*s.* 4*d.*

[b] One of their Eggs was worth 5 *Denarii*, 3*s.* 2½*d.*

[b] *M. Auſidius Lurco* uſed to make every year of his Peacocks 60000 *H S.* or, 484*l.* 7*s.* 6*d.*

[a] *Varro* ſaith he has known 5000 *Turdi* come from one Farm in a Year, which according to the forementionʼd price are worth 484*l.* 7*s.* 6*d.*

[c] Commonly fine Doves were ſold the pair at the ſame price with Peacocks, *viz.* 200 *Nummi*, or 1*l.* 12*s.* 3½*d.*

Others of a finer kind were much dearer. *Varro* relates that *Axius* refuſed to give a pair of his under 400 *Denarii*, 12*l.* 18*s.* 4*d.*

[a] Atque in hac villa qui eſt ornithon, ex eo uno quinquemillia ſcio veniſſe turdorum denariis ternis, ut ſexaginta millia ea pars reddiderit eo anno villæ. Varro lib. 3. cap. 2. [b] Idem lib. 3. cap. 6. [c] Paria ſingula vulgo vencunt ducenis nummis, nec non eximia ſingulis millibus nummum, quas nuper cum Mercator tanti emere vellet a L. Axio Equite Romano, minoris quadringentis denariis daturum negavit. Varro lib. 3. cap. 7.

When the Merchant who was buying them, offered 1000 *Nummi*, 8 *l.* 1 *s.* 5 ½ *d.* But thoſe were valu'd ſo highly for Pleaſure, rather than the Table.

[d] *Auguſtus Cæſar* bought the Crow that ſaluted him as he was returning from *Actium*, a pennyworth at 20000 *Nummi*, 161 *l.* 9 *s.* 8 *d.*

[e] A white Nightingale was bought at 6 *Seſtertia*, 48 *l.* 8 *s.* 9 *d.* for a preſent to *Agrippina*, *Claudius*'s Wife.

[f] Gooſe Down was ſold *per* Pound for 5 *Denarii*, 3 *s.* 6 ½ *d.*

FISH. The *Romans* were more extravagant in the prices of their Fiſh, than of Fowl. [g] *Juvenal* tells you of a *Mullus* (which is ſuppoſed to be what the *French* and we call *Surmoullet*) bought for 6000 *Nummi*, 48 *l.* 8 *s.* 9 *d.*

[h] According to *Macrobius* there was paid for another 7000 *Nummi*, 56 *l.* 10 *s.* 1 ½ *d.*

[i] For a third, according to *Pliny*, 8000 *Nummi*, 64 *l.* 11 *s.* 8 *d.* which he reckons the more wonderful, the *Mullus* being a Fiſh that ſeldom exceeded two pound weight. Theſe are not to be reckon'd common prices; but as they were the effects of great Extravagance and Luxury, they were indications of great riches, at leaſt among the people of high rank.

Fiſhes at *Rome*, like Toaſts, were ſometimes in vogue, then wore out by length of time, and ſucceeded by others. [k] Thus the *Acipenſer* or Sturgeon was dethroned by the *Scarus*, and the *Aſellus* or Whiting by the *Murena*. However the *Acipenſer* had ſtill ſome Honour paid him, having the Hautboys marching up before him, and being carried by people with Coronets on

[d] Sueton. in Auguſto. [e] Scio ſeſtertiis ſex, candidam [Luſciniam] alioquin, quod eſt prope inuſitatum, veniſſe, quæ Agrippinæ Claudii Principis conjugi dono daretur. Plin. lib. 10. cap. 29. [f] Plin. lib. 10. cap. 22.

[g] --- Mullum ſex millibus emptum. Juv. Sat. 4.

[h] Macrob. lib. 3. cap. 16. ſeptem millibus.

[i] Plin. lib. 8. cap. 17. octo millibus nummum Aſinius Celer, hoc (Mullo) piſce prodigus, Caio Principe unum mercatus eſt: quod ideo mirum videri debet, quod hic Piſcis raro admodum binas libras ponderis exſuperat. [k] Plin. lib. 9. Sect. 37. Apud antiquos piſcium nobiliſſimus habitus acipenſer. Sect. 38. Poſtea præcipuam auctoritatem fuiſſe Lupo & Aſello. Sect. 39. Nunc Scaro datur principatus, qui ſolus piſcium dicitur ruminare; proxima eſt his menſa generis muſtelarum ex reliqua nobilitate & gratia, maxima eſt & copia Mullis ſicut magnitudo modica.

on their Heads to the Table. (*Ut Acipenſerem inferrent Coronati cum cantu Tibiæ*) Notwithſtanding the great reputation of the *Scarus*, the *Mullus* kept his ground among the polite. [l]*Varro* owns that you might ſooner get the beſt Team of Horſes out of *Hortenſius*'s Stables, than a bearded Mullet out of his Ponds.

[m]The *Tripatanum*, which we ſhall tranſlate Triplet, was the chief eating according to *Feneſtella*, which conſiſted of the Lamprey, the *Lupus Marinus* (not our Pike as we imagine) and the *Myxo* another fiſh, which hath no *Engliſh* Name. Theſe were ſerv'd up together in one machine with three Bottoms. Much may be ſaid in honour of the *Muræna*, or Lamprey.

[n]*C. Hirrius*, the moſt famous *Roman* for Fiſh-ponds, thought his Lampreys ineſtimable; he would not ſell, but lent ſix thouſand of them for *Cæſar*'s Triumphal Supper.

[o]*Lucius Craſſus*, a Man of Cenſorial Dignity, went into Mourning for a deceaſed Lamprey; [p]and *Vedius Pollio* a *Roman* Knight, a great Friend of *Auguſtus*, fed his Lampreys with his condemned Slaves, and yet he was celebrated for a good-natur'd man.

Our Age is as yet unacquainted with the niceneſs of [q]the Ancients in weighing their Fiſhes at Table, and beholding them expire. [r]The death of a *Mullus* with the variety and change of Colours in its laſt moments, was reckon'd one of the moſt entertaining Spectacles in the world.

[s]It is ſome honour to our Nation that the *Sandwich* Oyſters were famous (*Rutupino de fundo*) but I cannot diſcover what they were a Barrel.

l Varro lib. 3. cap. 17. Celerius voluntate Hortenſii ex equili educeres Rhedarias ut tibi haberes mulas, quam e piſcinis barbatum mullum. m Plin. lib. 35. Tripatanum, inquit Feneſtella, appellabatur ſumma cœnarum lautitiâ, una erat Murænarum, altera Luporum, tertia Myxonis piſcis. n Plin. lib. 9. cap. 55. C. Hirrius ante alios, qui cœnis triumphalibus Cæſaris Dictatoris, ſex millia numero Murænarum mutuo appendit. Nam permutare quidem pretio noluit. o Quod Lucius Craſſus vir Cenſorius Murænam in piſcina domus ſuæ mortuam atratus luxerit. p Plin. lib. 9. cap. 23. Vedius Pollio Eques Rom. ex amicis D. Auguſti, vivariis earum (murænarum) immergens damnata mancipia, non tanquam ad hoc feris terrarum non ſufficientibus, ſed quia in alio genere totum pariter hominem diſtrahi, ſpectari non poterat. q Ammian. lib. 28. r Plin. lib. 9. cap. 17. Mullum expirantem verſicolori & numeroſâ quadam varietate ſpectari, proceres gulæ narrant, rubentium, Squamarum multiplici mutatione palleſcentem utique ſi vitro ſpectetur incluſus. s Plin. lib. 32. cap. 6. Item Juvenalis

- - - - - - Circæis nata forent an
Lucrinum ad ſaxum Rutupinoque edita fundo
Oſtrea - - - - - -

[t]The *Romans* were in as great favour with their Fiſhes, as their Fiſhes were with them: no body could ſay they were deaf, for they would come when they were called.

[u]A Lady beſtowed Earings upon a favourite Lamprey.

After what I have ſaid of the great value the *Romans* put upon Fiſhes, it will not appear incredible that [x]*C. Hirrius* ſhould ſell his Fiſh-ponds for *Quadragies H S.* 32291 *l.* 13 *s.* 4 *d.*

[y]And that *Lucullus*'s fiſh, after his death, ſhould be ſold for the ſame, *viz.* 32291 *l.* 13 *s.* 4 *d.*

[z]It will not be impertinent to the preſent ſubject to make honourable mention of *Fulvius Hirpinus*, who was the firſt that made a Nurſery for Snails, and fed them ſo well (*farre & ſapâ*) with bran and boil'd wine, that the capacity of the Shells of ſome of them amounted to 80 *Quadrantes*, or 20 *Sextarii*, that is about 10 Quarts.

[b]As to the price of fruit, we know that peaches were ſold firſt for a *Denarius* 7 ½ *d.* And they roſe afterwards to 30 *Nummi*, or 4 *s.* 10 *d.*

[c]Cherries were brought out of *Pontus* by *Lucullus A. U.* 680, and were brought into *Britain* 120 years afterwards, which makes it *Anno Dom.* 55. But I cannot find what they were a hundred. Large *Aſparagus* was ſometimes ſold a-piece for 6 *d.* which will make them amount to 2 *l.* 10 *s. per* hundred.

[d]But the *Ravenna Aſparagus* was as large as our *Batterſea Aſparagus*, weighing four ounces a-piece.

The forementioned particulars will diſpoſe the Reader to believe that the *Romans* were as extravagant in their eating in the laſt Days

[t] Plin. lib. 10. Mart. lib. 6. Ep. 30.
[u] Antonia Druſi, murænæ quam diligebat, inaures addidit. Plin. lib. 9. cap. 55. [x] Hujus villam intra quam modicum quadragies piſcinæ venierunt. Plin. lib. 9. cap. 55. [y] Quadragies HS piſcinæ a defuncto illo veniere piſces. Plin. lib 9. cap. 54. [z] Cochlearum vivaria inſtituit Fulvius Hirpinus. (& paulo poſt) Quin & faginam earum commentus eſt, ſapa & farre, aliis generibus, ut cochleæ quoque altiles ganeam implerent: cujus artis gloria in eam magnitudinem perducta ſit, ut octoginta quadrantes caperent ſingularum calices. Plin. lib. 9. cap. 56. [b] Primo denariis ſingula venundata, pretiumque jam ſingulis triceni nummi fuere. Plin. lib. 15 cap. 12. [c] Ceraſi ante victoriam Mithridaticam L. Lucullo non fuere in Italia. Ad Urbis annum DCLXXX. is primum vexit e Ponto: anniſque CXX trans Oceanum in Britanniam uſque pervenere. Plin. lib. 15. cap. 25. [d] Plin. lib. 9. cap. 4.

Days of their Commonwealth, as they were frugal in the beginning of it. [e]For in early times they were allowed only to lay out on feſtival days 30 *Aſſes*, 1 *s.* 11 ½ *d.* on eating; They were allowed to lay out on a Supper no more than 100 *Aſſes*, or 6 *s.* 5 ½ *d.* (beſides the product of the ground, that is, Bread, Drink, Roots and Legumes,) whence they were called *Centenariæ Cœnæ*. And *Lucilius* the Poet from his manner of living was named *Centuſſis*. [f]*Cato* the elder never ſpent more than his Allowance of 30 *Aſſes* on a meal. But they arrived by degrees to an incredible extravagance. [g]*Heliogabalus* laid out on a Supper *tricies H. S.* 24218 *l.* 15 *s.*

[h]*Caligula* ſpent on a Supper *Centies H. S.* 80729 *l.* 3 *s.* 4 *d.*

[i]*Vitellius* in eating and drinking, within the Year, ſpent 22500 *Myriads* of *Drachms*, 7.265625 *l.*

[k]*Tacitus* ſaith, that he ſpent the ſame Sum in a few Months, *viz.* 7.265625 *l.*

[l]*Lucullus*'s eſtabliſhment for his Suppers in the *Apollo*, was 50000 *Drachms*, 1614 *l.* 11 *s.* 8 *d.*

[m]*Claudius Æſopus* the Tragedian had one diſh that coſt him 600 *Seſtertia*, 4843 *l.* 10 *s.* In which, to enhance the price of it, he had put ſinging Birds.

[n]The young Captain, his Son, treated his Gueſts with coſtly Pearls, a Pearl for ev'ry Gueſt made into Pearl Cordial.

It may ſeem ſomewhat difficult to make out the Bills of fare for ſome of the forementionꝰd Suppers, eſpecially thoſe of *Vitellius*. I queſtion not but an expert Clerk of a Kitchen can do it from the following hints.

[o]Firſt, his Imperial Majeſty eat four times a-day; no Supper, Breakfaſt or Collation under 400000 *Nummi*, or 3229 *l.* 3 *s.* 4 *d.*

and

[e] Macrob. lib. 3. cap. 17. Aſſes triginta duntaxat edundi caulâ cuique ſumere licebat, ex lege Liciniâ. [f] Plutarch. in Catone majore. [g] Lampridius corrupte tribus millibus H. S. pro tricies H. S. [h] Seneca de conſolatione. [i] Dio in Vitellio. [k] Lib. 17. Novies Millies H. S. Vitellius Cæſar paucis menſibus inverſiſſe creditur. [l] Plutarch. in Lucullo. [m] Plin. lib. 10. cap. 60. Maxime tamen inſignis eſt in hac memoria Clodii Æſopi Tragici Hiſtrionis patina ſexcentis ſeſtertiis taxata. [n] Iterum lib. 35. cap. 12. Cum unam patinam Æſopi Tragœdiarum hiſtrionis in natura avium diceremus ſexcentis ſeſtertiis ſtetiſſe, non dubito indignatos legentes. [o] Sueton. in Vitellio cap. 13. Trifariam ſemper, interdum quadrifariam diſpertiebat in jentacula & prandia & cœnas, commeſſationeſque: facile omnibus ſufficiens, vomitandi conſuetudine. Indicebat autem aliud alii eadem die: nec cuiquam minus unguli apparatus quadringenis millibus nummum conſtiterunt.

and by way of preparation for the next meal he took gentle Emeticks between them.

[p] His Brother once gave him a pretty coſtly Supper, in which there were two thouſand of the choiceſt fiſhes, ſeven thouſand of the choiceſt Birds; one diſh for its amplitude and capacity was called *Minerva*'s Buckler, which conſiſted chiefly of the livers of *Scari*, the brains of Pheaſants and Peacocks, the tongues of Phenicopters, and Lamprey's Bellies brought from the moſt diſtant Coaſts in *Triremes*. Now the Reader muſt underſtand that the *Scarus* was firſt in repute amongſt fiſhes, and generally coſt the value of a Principality. Next to that was the *Muſtella*, and after that the *Mullus*, which coſt ſometimes about 64 Pounds.

The *Roman* recumbent or (more properly) accumbent poſture in eating was introduc'd after the firſt *Punick* War: and no doubt occaſion'd by their eating immediately after Bathing. The Tables were low amongſt the better ſort, made of *Citron* or ſome precious wood, with three Ivory Feet, cut in the Figure of a Lion's or Leopard's Paw. About the Table there were three Beds at moſt: after the time of *Veſpaſian*, there were often but two; from whence they were called *Biclinia*; and the Table was in the figure of a Semicircle, from which it was called *Sigma*; the Space before was open for the Waiters. In both ſorts of Tables, the Beds were cover'd with magnificent Quilts, amongſt the richer ſort. After bathing they put on their *Veſtes Cœnatoriæ*, Garments that were made to eat in. It is plain that this manner of eating was not only inconvenient, but impoſſible for a great number of Gueſts at the ſame Table; and yet there were twelve at a famous Supper of *Auguſtus*, mention'd by *Suetonius*, from thence called δωδεκάθεος. So that the common opinion is not true, *viz.* that *L. Verus* was the firſt who made a feaſt for 12 perſons. In the deſcription of the *Pontifical*

[p] Sueton. in Vitellio, cap. 13. Famoſiſſima ſuper cæteras fuit cœna ei data adventicia a fratre: in qua duo millia lectiſſimorum piſcium, ſeptem avium appoſita traduntur. Hanc quoque exſuperavit ipſe, dedicatione patinæ, ob immenſam magnitudinem Clypeum Minervæ, αἰγίδα πολίκχου dictitabat. In hac Scarorum jecinora, phaſianorum & pavonum cerebella, linguas Phœnicopterum, murænarum lactes a Carpathio uſque fretoque Hiſpaniæ per navarchos ac triremes petitarum commiſcuit.

tifical Supper mention'd by *Macrobius*, there were 10 at two Tables; the Gueſts lay on their left Side, leaning on their elbow, with their Heads ſupported by Pillows. When there were more than one on the ſame Bed, they did not lye as we on our Beds, but ſo as the Feet of the firſt perſon reached to the Back of the ſecond, and ſo on. The moſt honourable place was the uppermoſt, or head of the bed, except when there were three perſons on one, and then the moſt honourable place was the middle. It was thought indecent at firſt for women to eat with men after this manner, but it was eaſy to imagine that time muſt either aboliſh the cuſtom, or conquer their modeſty. In nuptial and other ſolemn feaſts, where the Gueſts were numerous, there were ſeveral *Triclinia* in the ſame Room, and yet they could not entertain conveniently ſo many as dine often in our great Halls. Therefore their way of eating muſt have been, generally ſpeaking, more private than ours, and on that account leſs expenſive. And the reflection of *Varro* in *A. Gellius*, that the number of Gueſts ſhould begin at that of the Graces, and end with that of the Muſes, from 3 to 9, was not only true, but agreeable to the Characters and Manners of the People. As for their Napkins, *Heliogabalus* had thoſe of Cloth of Gold, and *Galienus* too, as *Trebellius* relates: but they were moſt commonly of Linnen, ſome of ſoft Wool; as *Trimalcion's*, *qui non linteis tergebatur, ſed palliis ex molliſſima lana factis.* In ſome Banquets the Gueſts brought their own Napkins.

There is a deſcription of the magnificent and expenſive manner of eating of the ancient *Romans*, *Greeks* and *Barbarians*, in *Philo Judæus*, *de vita contemplativa.* It is too long to inſert here, but ſome of the particulars which he mentions are, Beds adorn'd with Ivory, Tortoiſe-ſhell, Pearls and precious ſtones; Matreſſes of Purple interwoven with Gold, adorn'd with Foliages and Flowers; vaſt Side-boards of drinking Cups, and Vaſes of the richeſt workmanſhip: being ſerv'd with handſome young Boys, painted, curled, and finely dreſs'd: ſeven changes of Tables, and ſometimes

times more, ſerved up with the greateſt delicacies, that Earth, Sea or Air could afford. It was the cuſtom then to change the Tables with the Courſes or Services.

They liv'd upon the ſame ſorts of Fleſh and Fiſh as we do, only they had no Turkeys. We have mentioned ſome of the Fiſhes that were in greateſt requeſt, as the *Sturgeon, Scari, Lamprey, Lupus Marinus*, &c. *Athenæus lib.* 1. *cap.* 4. acquaints us, that *Sicilian Lamprey Eels*, πλωτὰι, that is floating, (perhaps in oppoſition to muddy,) the Belly of *Tunny* Fiſh taken at *Pachynum*, Kids from the Iſland of *Melos*, *Mulets* from *Symetum*, Shell-fiſh of *Pelorus*, *Herrings* of *Lipara*, *Radiſhes* of *Mantinea*, *Turnips* of *Thebes*, *Beets* from *Aſcra*, were in greateſt eſteem. They had a great variety of Cakes, as *Placenta, Laganum, Libum, Scriblita, Sphærita, Craſtianum, Sirutum, Cruſtulum.* Each of which may make a very good Subject of a Diſſertation for an Antiquary; as alſo whether they had Pyes. One may judge of the art of their Cooks from this, that they could make artificial Birds and Fiſhes, in Default of the real ones, and which exceeded them in the exquiſiteneſs of the Taſte. *Nicomedes* King of *Bithynia*, longing for Herrings, was ſupplied with freſh ones by his Cook, tho' at a great diſtance from the Sea. *Trimalchus*'s Cook could make out of Hog's Fleſh all ſorts of Fiſhes and Birds. They were much addicted to boiling and roaſting with Puddings in the Belly. *Athenæus* ſpeaks of a Cook that could dreſs a whole Hog in that manner. I refer the Readers to the Writers on this Subject, for accounts of their Pickles and Sawces. They made a very ſavoury one of the Intrails of the Beaſts which they dreſs'd.

Their Tables ſeem to have been more delicate than abundant. There is a Bill of Fare, and the Company recorded, in *Macrobius lib.* 2. *cap.* 9. who took it out of the Records of the High-Prieſt *Metellus*. It was the Inauguration Supper of *Lentulus*, when he was made *Flamen Martialis*, Prieſt of *Mars*. The Gueſts were all ſacred perſons, Prieſts and Veſtals. There were ten Men in two *Triclinia, viz. Lentulus* himſelf, *Q. Catulus, M. Æmilius Lepidus, D. Silanus,*

D. Silanus, *C. Cæſar Rex ſacrorum*, *P. Scævola Sextus*, *Q. Cornelius*, *P. Volumnius*, *P. Albinovanus*, and *L. Julius Cæſar* the *Augur*. In the third *Triclinium* were *Popilia*, *Perpennia*, *Licinia*, *Aruntia*, Veſtals; and *Publicia Flaminica* his Wife, and *Sempronia* his Mother-in-law.

The Bill of Fare follows, at the Inauguration Supper of *Lentulus*.

Ante Cœnam.	*Before Supper, or the firſt Courſe.*
Echini,	Shell-fiſh, prickly like a Hedgehog.
Oſtreæ crudæ, quantum velint,	Raw Oyſters, as many as they pleas'd.
Peloridæ,	Cockles, ſo call'd from *Pelorus* in *Sicily*.
Sphondyli,	The griſly parts of Oyſters,
Turdi,	Thruſhes,
Aſparagi,	Aſparagus,
Subtus Gallinam altilem.	Under a cramm'd Fowl.
Patina Oſtrearum,	A plate of Oyſters.
Pelorides,	Cockles.
Balani nigri, *Balani albi*,	Another Shell fiſh, ſhap'd like an Acorn.
Iterum Sphondyli,	The griſly part of Oyſters a 2d time.
Glycomaridæ,	The largeſt kind of Cockles.
Utricæ Ficedulæ,	Beccaficos.
Lumbi Capragines, *Aprugni*,	Chines of a Goat and Boar.
Altilia ex farina involuta,	Fat Birds in paſte.
Ficedulæ,	Beccaficos.
Murices, & *Purpuræ*.	Two ſorts of Shell-fiſh, of which the purple Dye was made.

In Cœna.	*At Supper.*
Sumina,	Dugs of a Hog.
Sinciput Aprugnum,	Boar's Cheek.

Patina piſcium,	A Diſh of Fiſh.
Patina Suminis,	A Diſh of Sow Dugs.
Anates,	Ducks,
Querquedulæ cliæ,	Boiled fat Birds.
Lepores,	Hares,
Altilia Aſſa,	Cramm'd Birds roaſted.
Amylum,	A Pudding.
Panes Picentes,	A ſort of Cakes.

In anſwer to ſome who have doubted whether it were poſſible for *Vitellius* to ſpend 7.265625 *l.* in eating and drinking within the Year: I will ſuppoſe his Eſtabliſhment to ſtand thus,

	l.	*s.*	*d.*
For the ordinary of his Table, four meals a-day, at the rate of 3229 *l.* 3 *s.* 4 *d.* *per* Meal in a Year; - - - - - - - - -	4.714583	6	8
For the Extraordinaries of *Pallas*'s Buckler	765625	0	0
For his other Tables and Contingencies	1.785416	13	4
Sum Total	7.265625	0	0

With very good Clerks of the Green-Cloth this Sum might have ſerv'd a Year, but with bad Management, it's no wonder it was ſpent much ſooner.

As I intend to deal candidly with my Readers, I would not willingly lead them into any miſtake about a matter of ſuch conſequence as *Æſop*'s Diſh above-mention'd, neither would I incur the Diſpleaſure of learned men, who in their Diſcourſes about this *Patina* have fallen into indecencies, which nothing but the Dignity of the Subject could excuſe. *Gronovius* has corrected *Pliny* three times, and *Tertullian* once in this matter, with a great deal of Judgment. *Hotoman* has taken *Budæus* to task, and *Gronovius* refutes them both. Manuſcripts have been oppos'd to Manuſcripts. As for my part, I invoke the aid of all great Criticks to aſſiſt me, before I give my Judgment

Judgment in ſo important a matter. The paſſages which commemorate this famous *Patina*, as they are commonly read, are Firſt, *Plin. lib.* 10. *cap.* 51. *Maxime tamen inſignis eſt in hac memoria*, Claudii Æſopi *Patina ſexcentis ſeſtertiis taxata, in qua poſuit aves Cantu aliquo aut humano ſermone vocales, Nummis ſex ſingulas coemptas. Plin. lib.* 35. *cap.* 12. *Nam nos, cum unam Æſopi Tragœdiarum Hiſtrionis, in natura avium diceremus, ſeſtertiis C. ſtetiſſe, non dubito indignatos legentes. At Hercules Vitellius in principatu ſuo C. C. ſeſtertiis condidit patinam, cui faciendæ fornix in campis exædificata erat, quoniam eo pervenit Luxuria ut etiam fictilia pluris conſtant quam Murhina. Tertullian. de Pallio cap.* 5. *Gulam quâ Aſinius Celer unius Mulli obſonium ſex ſeſtertiis detulit, qua Æſopus Hiſtrio ex Avibus ejuſdem pretioſitatis ut canoris & loquacibus, quibuſque Centum millium patinam confiſcavit.* In order to ſet right, what has ſo unhappily divided the critical World hitherto, I hope the Learned will give their opinions upon the following points.

What they think of *Budæus*'s Reading of *Millibus ſex ſingulas* for *Nummis ſex*: conſequently whether this *Patina* was *Centenaria*, of 100 Birds; or elſe, that each Critick will ſend in his number of Birds?

Whether the Value of the Diſh it ſelf is only expreſt, which the learned *Hotomanus* hath contended for with great warmth?

Or whether the Diſh and the Birds are valued?

And what they think of *Salmaſius*'s Opinion, which he has defended ſtrenuouſly, and fallen foul of *Budæus*? *viz.*

That *Pliny* affirms three things, that *Æſop*'s diſh was earthen Ware, that it coſt 100 *Seſtertia*, and that it is the workmanſhip that is valued, and not the Birds, which perhaps were not worth a Shilling a-piece. I cannot come into this raſh Judgment, founded only on the compariſon of *Æſop*'s Diſh with that of *Vitellius*, where undoubtedly the workmanſhip is meant.

Tertullian has certainly confounded the whole very much; and the words *ejuſdem pretioſitatis* may refer either to the preceding example of *Aſinius Celer*, or the Birds; as if he had Birds of equal

price with ſinging Birds. Another queſtion ariſeth, whether the common Manuſcripts are wrong in reading *Ex* inſtead of *Sex*: from all which ſtrong Arguments, *Gronovius* has taken it upon his Salvation that there were no more than ſix ſinging Birds, each worth *Centum millia*, or a hundred thouſand, and conſequently the whole Diſh muſt be worth ſix hundred thouſand, or 4843 *l.* 15 *s.*

But I own the matter appears ſtill ſo intricate to me, that I muſt beg the Opinion of the Learned upon it.

CHAP. VI.

Of the Prices of Cloaths.

AS to the Prices of Cloaths, we may infer that amongſt thoſe of great quality they were high, from the following matters of fact.

[a] A *Roman* Pound of *Padua* Wooll has been ſold for 100 *Nummi*, 16 *s.* 1 ½ *d.* at this rate the *Engliſh* pound *Troy* comes to 17 *s.* 8 ½ *d.* but this is an extraordinary price, and for the very fineſt Wool, as the *Padua* Wool is yet reckoned.

[b] *Baſſus* is reproached by *Martial* for buying upper Garments for 10000 *Nummi*, 80 *l.* 14 *s.* 7 *d.* whereas [c] *Cato* the Elder never wore a Suit above 100 *Drachms*, 3 *l.* 4 *s.* 7 *d.*

The Purple was very dear; [d] there were two ſorts of Fiſhes whereof it was made, the *Pelagii*, (which were thoſe that were caught in the deep) and the *Buccini*. The *Pelagium per* Pound was worth 50 *Nummi*, 8 *s.* 10 ½ *d.*

And

[a] Plin. lib. 9. cap. 47. Centenos nummos libra Lanæ albæ circumpadanæ ad hoc ævi non exceſſit. [b] Mart. lib. 8. Epigr. 10. Emit lacernas millibus decem Baſſus. [c] Plutarch. in Catone majore. [d] Plin. lib. 9. cap. 40. Non tamen uſque Pelagii libras quinquagenos nummos excedere, & Buccini centenos, ſciant qui iſta mercantur immenſo.

And the *Buccinum* double that, *viz.* 17 *s.* 8½ *d.* *Harduin* reads a hundred Pounds at that price.

But whatever the price of the Fiſh was, the Cloth was very dear. [c] The Violet Purple was *per* Pound of dy'd Wool or Cloth 3 *l.* 10 *s.* 11 *d.*

[c] The *Tyrian* double Dye *per* Pound could ſcarce be bought for 35 *l.* 9 *s.* 1½ *d.*

[f] *Pliny* tells us that to dye 50 pounds of Wool, was required 200 pounds of *Buccinum*, and 110 pounds of *Pelagium*. According to this proportion, and the prices of *Buccinum* and *Pelagium* above-mentioned, the Dying of one *Engliſh* Pound of Wool, would coſt 4 *l.* 10 *s.* 5 *d.*

[g] There was an *Indian* Purple at 75 *s.* 1½. *per* Pound as appears by *Pliny*, who likewiſe mentions ſeveral other ſorts of cheap Dyes.

[h] There is one piece of extravagance mention'd by the ſame Author, which was their dying the Wool upon the Sheep's back.

It appears by a Tax of *Cato*'s, that the Ladies began pretty early to be extravagant: it was provided by that Law, that Women's wearing Cloaths, Ornament and Sedan, exceeding 121 *l.* 1 *s.* 10½ *d.* in value, ſhould pay 1½ *per Cent.* or 30 Shillings in the hundred pound value. If this Law had continued in force in the time of [i] *Lollia Paulina*, ſhe muſt have paid for her Jewels only 4843 *l.* 15 *s.* for when dreſſed out, ſhe wore about the value of 322916 *l.* 13 *s.* 4 *d.*

Lampridius ſaith that *Heliogabalus* was the firſt man who wore a Garment entirely of Silk. *Seneca* [k] ſpeaking of the ſilken Cloaths, owns they were uſed by the Ladies, and it ſeems they were thin like Gauz, for he complains that they diſcovered too much. [l] The Men were forbid to uſe ſilk Cloaths, by an Order of *Tiberius*. And even purple Cloaths were forbid by *Julius Cæſar*,

[c] Plin. lib. 9. cap. 39. Nepos Cornelius, qui divi Auguſti principatu obiit, me inquit juvene, violacea purpura vigebat, cujus libra denariis centum venibat: nec multo poſt rubra Tarentina. Huic ſucceſſit diabapha Tyria, quæ in libras denariis mille emi non poterat.

[f] Plin. lib. 9. cap. 38. Summa medicaminum in L libras vellerum, Buccini ducentæ, Pelagii CX.

[g] Pretium Indico X. X in libras Plin. lib. 35. cap. 6.

[h] Plin. lib. 8. cap. 48. vidimus jam & viventium vellera, purpura, cocco, conchylio, ſeſquipedalibus libris infecta.

[i] Plin. lib. 9. cap. 15.

[k] Seneca de Beneficiis lib. 7. cap. 9.

[l] Dio lib. 57.

ſar, [m] except to perſons of certain ranks and ages, and on certain days.

[n] It ſeems they were extravagant in their *Triclinaria*, which one may tranſlate Quilts or Carpets. *Capito* was reproached by *Metellus*, that he had paid for *Babylonian Triclinaria* 6458*l.* 6*s.* 8*d.* This is nothing to the price paid by *Nero* mentioned afterwards, *viz.* 322911*l.* 13*s.* 4*d.* Ladies would pay for one piece of Linnen 8072*l.* 18*s.* 4*d.*

Their Extravagance in Cloaths appears from one particular, that they changed them often in their Banquets, and Baths.

In ſtating the balance of Expences between the ancient *Roman*, and our Dreſſes, the particulars muſt be conſider'd: firſt Linnen was not us'd among the *Romans*, at leaſt by men, till about the time of *Alexander Severus*, of whom *Lampridius*, who wrote his Life, obſerves that he wore Linnen. *Varro lib.* 1. takes notice that after the *Romans* began to wear two *Tunicks* or Coats, they introduc'd the words *Subucula* and *Induſium*. It is certain that *Auguſtus* wore a woollen Shirt. *Suet. in Aug. cap.* 82. *Hieme quaternis cum pingui Toga, Tunicis & Subuculæ thorace laneo & fœminalibus & tibialibus muniebatur. Plin. lib.* 19. *cap.* 1. relates it from *Varro* as a particular piece of Luxury of the family of the *Serrani*, that the Ladies wore Linnen: ſo that in this Article the Balance of Expences is on our ſide. The *Tunicks* of the *Romans*, which properly anſwer to our Waſtcoats, were ſimple, without Ornaments, and with very ſhort Sleeves. Thoſe who ſerved at Table wore them larger plaited, and tied with a girdle. Next to the *Tunick* they wore the *Chlamys* or *Paludamentum*, which was a ſort of a ſhort Cloak tied with a Buckle commonly to the right Shoulder: this was a garment of People of Quality, and commonly wore by the Emperors. The *Pallium* was a Garment ſomewhat like that of the Eccleſiaſticks in Popiſh Countries, but ſhorter. There were a great many ſorts of them. The *Palliolum* was ſomewhat like our Riding-Hoods, and ſerv'd both for a *Tunick* and Cloak. The *Phelone* or

[m] Sueton. in Cæſare. cap. 43. [n] Plin. lib. 8. cap. 48.

Penula

Penula did not differ much from the *Chlamys*, except in the Stuff it was made of. The *Toga* was a Robe of Quality, not allowed to the ordinary people: it came, as *Tertullian* (*de pallio*) obſerves, from the *Pelaſgi* to the *Lydians*, and from the *Lydians* to the *Romans*. The Antiquaries being but indifferent Taylors, they wrangle prodigiouſly about the cutting out the *Toga*: I am of opinion a Mantua-maker could decide thoſe Diſputes better than the moſt learned of them. I mention thoſe Habits, in order to obſerve, that becauſe of the ſimplicity of the Shape, want of Ornaments, Buttons, Loops, Gold and Silver Lace, they muſt have been cheaper than ours, both as to the price of Materials and Taylor's Bills, and becauſe looſe Garments are likewiſe more laſting. One of the moſt valuable Trimmings of their Cloaths was a long Stripe ſow'd upon the Garment, call'd *latus Clavus*. A *latus Clavus* of Gold was an extraordinary thing; for *Vopiſcus* in *Bonaſo*, quotes a Letter of the Emperor *Aurelian*, which mentions amongſt the Preſents ſent to *Bonaſus* by the Emperor, *Tunicam auro clavatam ſubſericam. Horace de Art. Poet.*

Purpureus late qui ſplendeat unus & alter
Adſuitur pannus,

The *Trabea* or *Veſtis trabeata*, ſeems to have differ'd from ſome of the former in Shape as well as in the condition of the Stuff: according to it's appellation, in all probability it was only a ſtriped Garment. The *Lacerna* came from being a military Habit to be a common Dreſs, eſpecially in the Country: it had a Hood which could be ſeparated or join'd to it, as occaſion requir'd. The common People us'd this of a dark Colour, and the Nobles of Purple. The *Birrhus quaſi* πύῤῥος, was a *Lacerna* of a Flame Colour. The *Gauſape* was a Habit rough and hairy on one ſide; and the *Amphimalla* was rough on both ſides. The ſimplicity of their Ornaments appears from the Habits of the young Nobility, for the *Prætexta* which was given to young Noblemen at the Age of ſixteen,

had

had only a purple border about it. It would ſeem that they did not make uſe of Handkerchiefs, but of the *Lacinia* or border of the Garment to wipe their face: for *Plautus* ſaith

At tu ædipol, ſume Laciniam & abſterge
Sudorem tibi.

All theſe Garments were for the moſt part made of Wool at firſt. Silken Garments did not come in till late, and the uſe of them in Men was often reſtrained by Laws. *Vopiſcus* tells us that the Emperor *Aurelian* denied his Wife a Silk Gown, and thought the demand very extravagant. And here I muſt advertiſe the Reader that tho' I have all along tranſlated *Serica* Silken, it may not be the proper ſignification of that word: for good Criticks diſtinguiſh the *Veſtis Bombicina* from *Serica*. And they are ſo diſtinguiſh'd by *Ulpian lib.* 23. *ff. de Auro Arg. Leg. Veſtis an veſtimenta legentur nihil refert, veſtimentorum ſunt omnia linea, laneaque, vel Serica vel Bombicina.* The *Bombicina* were thoſe which are made of the Silk-worm: and *Serica* perhaps made of a vegetable Production like Cotton. *Ammianus Marcellinus lib.* 23. *cap.* 11. *Cœli apud Seres jucunda temperies, ſalubriſque, Aeris facies munda, leniumque ventorum commodiſſimus flatus, & abunde ſilvæ ſublucidæ, a quibus Arborum fœtus aquarum aſperginibus crebris, velut quædam vellera molientes, ex lanugine & liquore mixtam ſubtilitatem tenerrimam pectunt. Virgilius lib.* 1. *Georg.*

Vellera quæ foliis depectunt tenuia Seres.

There are multitudes of other paſſages to the ſame purpoſe.

Men now-a-days are vaſtly more expenſive in the Ornaments of the head, for the *Roman* Men went commonly bare-headed, except when the hot, cold or wet weather forced them to cover it with their Gown. In the Country they uſed ſometimes a Hood. The *Pileus*, which we tranſlate *Bonnet*, was ſomewhat like a Night-cap:

cap: it was the ſymbol of Liberty, and therefore given to Slaves at their Manumiſſion. *Suetonius* tells us, that after the death of *Nero*, the people came all out with *Pilei* or Bonnets. There were other ſimple coverings for the Head, ſuch as the *Tutulus*, *Apex* and *Galerus*: this laſt was made of the Skins of ſacrificed Beaſts. But all thoſe Dreſſes for the Head were much cheaper than our Perriwigs and lac'd Hats. The *Petaſus* was a ſort of a travelling Cap: one may ſee the figure of it in the Statues of *Mercury* with wings added to it. *Alexander* the great wore it, as *Athenæus* tells us.

As to Women's Dreſſes, I think the balance may be thus ſtated between the *Roman* and the *Engliſh* Ladies. *Plautus in Epidic. Act.* 2. has made a comical Liſt of a *Roman* Lady's Wardrobe, which is impoſſible to tranſlate into any modern Language: but one could make an Inventory twice as long for an *Engliſh* or *French* Woman. The *Roman* and *Grecian* Women at firſt wore *Togæ*, afterwards *Tunicks*: the Stuff was moſt commonly Wool, of ſo thin a Texture, for Summer Dreſſes, that *Lucian* ſays, you could ſee their Bodies through them. *Tarentum* was as famous for that ſort of Manufacture, as now our *Norwich* is. The outward Garment of Women was the *Palla* or *Amiculum*, which ſometimes covered the Head like a Veil: it was much the ſame with the *Peplus*. The *Crocata* was perhaps an outward Garment, ſo called from the Saffron Colour. The *Penula* mention'd before was us'd by Women as well as Men; it was forbid to Women, except in the Country, by *Alexander Severus*; perhaps for being too convenient for intriguing. In all theſe particulars, whether we conſider the variety of Garments, price of the Stuffs or Ornaments, our Ladies ſeem to be more expenſive. I doubt the *Roman* Ladies were not ſo coſtly as ours in Head-dreſſes, although there be an infinite variety in ancient Buſts and Statues. *Fauſtina* the wife of *M. Aurelius* appears on Medals in three or four different Head-dreſſes: for they were as changeable in their Faſhions as we are. They us'd falſe Hair, or Perriwigs: ſuch was the *Caliendrum* mention'd by *Horace*.

The *Fibula*, of which there are prodigious varieties ſtill remaining, being a laſting thing, made of ſome Metal, even Gold, (which were allowed to Soldiers by *Aurelian*, as *Fl. Vopiſcus* informs us) muſt have been much leſs expenſive than new Buttons and Loops to every Suit.

I have choſen to mention the moſt common Dreſſes, and the Stuffs they were made of. As for the *Veſtes Byſſinæ*, which we are told ſome Ladies wore, they muſt have been of ſuch an extravagant price, that there is no Stuff in our age comes up to it. The Scruple of *Byſſinum*, according to *Pliny* (*lib.* 19. *cap.* 1.) coſt four *Denarii*, or 2*s.* 7*d.* which makes the Pound *Averdupois* worth 49*l.* 12*s.* conſequently a Garment of twenty Pound Weight would coſt 992 Pounds the Materials only, beſides the Manufacture.

Both Men and Women wore Bracelets, Ear-rings and Pendants of Gold, and precious Stones. There are ſome found at this day of Amber, and Glaſs. They were very expenſive in this Article, therefore *Habinnus* in *Trimalcion*'s Feaſt ſaith, if he had a Daughter, he would cut off her Ears. *Pliny lib.* 12. ſpeaking of Pearls and Emeralds, ſaith, for their ſakes, *Excogitata ſunt aurium vulnera*, Wounds of the Ears were invented. *Seneca de vita Beata, cap.* 17. *Ut mulier locupletis domus cenſum Auribus gereret. Idem de beneficiis. Non ſatis eſt mulieribus inſania, niſi bina ac terna patrimonia Auribus pependiſſent.* By which paſſages, we find that Ladies, as well then as now, wore great Eſtates in their Ears. Both Men and Women wore *Torques*, Chains or Necklaces of Silver and Gold ſet with precious Stones. The Ancients ſeem to have been more expenſive in Shoes and Stockings than we. There are about a dozen of names for the ſeveral ſorts of *Calcei*, or the Coverings of the Feet and Ancles. The two extremities of the durableneſs of the Materials of Shoes, ſeem to have been in thoſe of the Diſciples of *Pythagoras*, made of the Barks of Trees; as *Philoſtratus* (*in vita Apollonii*) informs us: and thoſe of *Empedocles*, made of Braſs. *Strabo lib.* 6. *Philetus Cous* was ſuch a ſlender Fellow, that he was

forc'd to wear Leaden Shoes, for fear the Wind ſhould blow him down: but *Varro*, who relates this Story from *Ælian*, asks a puzling queſtion, If he was ſo weak, how he could walk with ſuch heavy Shoes. There were two ſorts of Shoes among the Ancients, ſuch as cover'd the whole Feet, *viz.* the *Mulleus*, *Pero* and *Phæcaſium*; and thoſe that left the upper part of the Foot bare, and were tied about with Thongs, *viz.* the *Caliga*, *Solea*, *Crepida*, *Braxea* and *Sandalium*. The *Mullei*, (from whence perhaps the *French* word *Mules*) were at firſt allowed only to the *Ædiles*, they were made of Leather dreſs'd with *Allum* of a yellow Saffron Colour, and by them worn only on high Days. It is not quite certain when the *Roman* Senators began to wear Shoes, only we are ſure Shoes were wore in the time of *C. Marius*, and *Julius Cæſar*, who was blam'd for wearing high-heel'd yellow Shoes as being deſcended from the *Alban* Kings, as *Dion* tells us. Tho' *Suetonius* ſaith, it was only to increaſe his Stature. Afterwards the *Romans* grew extremely expenſive and foppiſh in this Article: So that the Emperor *Aurelian* forbid Men that variety of Colours on their Shoes, allowing it ſtill to Women. But the great Expence conſiſted in Pearls and precious Stones with which they adorn'd their Shoes. The uſe of thoſe was likewiſe reſtrain'd to certain Ranks by the Emperor *Heliogabalus*. The common country People wore *Perones*, Shoes of undreſſed Leather. The *Phæcaſium* was a white Shoe, uſed by Prieſts in ſacrificing. *Appian. Alexand.* The *Caliga* was a military Shoe with a very thick Sole, tied above the inſtep with leather Thongs. The military Shoes of the Emperors and Tribunes were called *Campagus*. The Women wore *Soleæ* or *Crepidæ*, which left a great part of the upper part of the Foot bare. It appears from a paſſage of *Cicero de Inventione*, that wooden Shoes were given to Criminals to hinder them from making their Eſcape. As for what they call the *Soccus*, the dreſs of comical Actors, it was ſomething between a Shoe and a Stocking. The *Cothurnus* was uſed in Tragedy: it had a high Sole, and ſo gave a greater Stature to the Stage Heroes. There was another ſort of Orna-

ment wore by the young Nobility called *Bullæ*; they were round, or of the figure of a Heart, hung about their Necks like Diamond Croſſes. Thoſe *Bullæ* came afterwards to be hung to the *Diplomas* of the Emperors and Popes, from whence they had the name of Bulls.

The Men as well as the Women, in the later Ages of *Rome*, us'd Paint and Perfumes, and curled their Hair with great nicety. The Philoſophers, Satyriſts and Hiſtorians of thoſe times are full of Reflections upon thoſe effeminate cuſtoms.

It appears from ſome paſſages of ancient Authors, (*Ammianus Marcellinus lib.* 28. *Seneca de Tranquillitate cap.* 1.) that they kept their Cloaths, when they were not worn, conſtantly in a Preſs, to give them a Luſtre.

Sic tua ſuppoſitis perlucent præla Lacernis. Martial.

They had great variety and changes of Garments. *Plutarch* relates a Story of *Lucullus*, that a *Prætor* coming to borrow of him ſome Dreſſes for his *Chorus* in a publick Spectacle which he intended to exhibit, *Lucullus* anſwer'd, that he would inquire if he had ſuch, and meeting the *Prætor* next day, ask'd him how many he wanted, he told him a hundred, but *Lucullus* bid him take two hundred. *See* Horace *to the ſame purpoſe.*

CHAP.

CHAP. VII.

Of the Prices of Houſes.

I Have been able to diſcover very little of the common rates of Houſe-rent; [a] There is a Paſſage in *Suetonius* that ſeems to make that of the midling people at *Rome*, in the time of *Julius Cæſar*, amount to 2000 *Nummi*, 16*l.* 2*s.* 11*d.* In the other parts of *Italy* to 500 *Nummi*, 4*l.* 0*s.* 8½*d.*

Gronovius proves from a paſſage of *Dio*, that the latter Sum was only a Quarter's Rent.

[b] *Sylla* was reproached by his Fellow Lodger, that he was once in ſo low a Condition, that whilſt this Fellow Lodger paid 250 *Drachms*, 8*l.* 1*s.* 5½*d.* for the uppermoſt Story, he paid for the reſt of the Houſe 750 *Drachms*, 24*l.* 4*s.* 4½*d.* The great People of *Rome* were magnificently lodged. Yet it appears by a paſſage in [c] *Cicero*'s Oration for *M. Cælius*, that an annual Habitation or Houſe-rent of 30000 *Nummi*, 242*l.* 3*s.* 9*d.* was reckon'd pretty high.

[d] The outſide of *Cicero*'s Houſe was valued at *vicies H. S.* 1614*5l.* 16*s.* 8*d.* [e] His Country-houſe at *Tuſculum* was ſold for 725 *Seſtertia*. 5852*l.* 17*s.* 3½. both at under Rates.

[f] *Domitius* reproaching *Craſſus* for the extravagant magnificence of

[a] Sueton. in Cæſare. Annuam etiam habitationem Romæ uſque ad bina millia nummum; in Italia non ultra quingenos Seſtertios remiſit. [b] Plutarch in Sylla. [c] Cicero in Orat. pro M. Cœlio. Sumptus unius generis objectus eſt, habitationis, XXX millibus dixiſtis eum habitare. [d] Cicer. ad Att. Epiſt. lib 4. Superficies ædium —— vicies H.S. [e] Cicer. Epiſt. ad Att. lib. 1. HS. DCCXXV. [f] Plin. lib. 17. Valer. Max. lib. 9. Cn. Domitius L. Craſſo Collegæ ſuo, altercatione ortâ, objecit quod columnas Hymettias in porticu domus haberet: quem quum continuo Craſſus quanti domum ſuam æſtimaret, interrogaret, atque ut reſpondit ſexagies Seſtertio; Quo ergo, inquit, minoris fore æſtimas, ſi decem arbuſculas inde ſuccidero? Ipſe tricies Seſtertio, inquit Domitius. Tunc ait Craſſus, uter igitur Luxurioſior eſt? ego ne qui decem columnas centum millibus nummum emi, an tu qui decem arbuſcularum umbram tricies ſeſtertium ſummâ compenſas.

of his Houſe, offered him for it *Sexagies H. S.* 484371. 10*s.* *Craſſus* asked him, if he ſhou'd cut down ten Trees, what he would give him in that caſe; *Domitius* replyed, he would abate him half the Sum: Which of us then, ſaid *Craſſus*, is moſt extravagant; you that value the Shade of ten Trees at 24218*l.* 15*s.* or I a houſe left me by my Predeceſſors at twice as much? *Pliny*'s number is here corrected by *Valerius Maximus*.

It appears by a paſſage of *Plutarch* in the life of *Marius*, that the value of Houſes in *Rome* roſe conſiderably in a few Years: For *Marius*'s Houſe, that was bought by *Cornelia* for [g] 7½ *Myriads* of *Drachms*, 2421*l.* 17*s.* 6*d.* was in no long time afterwards purchaſed by *L. Lucullus* for [h] 50 *Myriads*, 200 *Drachms*, 16152*l.* 5*s.* 10*d.*

[i] *Pliny* ſeems to intimate the extraordinary Magnificence and Increaſe of the value of Houſes; by telling you that the Houſe of *Lepidus*, which in the time of his Conſulate was reckoned one of the fineſt in *Rome*, within the Space of 35 Years was not in the hundredth Rank. *Hirrius*'s Country-houſe (which was but ſmall) by reaſon of the Fiſh-ponds, was ſold for 32291*l.* 13*s.* 4*d.*

[k] *Clodius*'s Houſe coſt *centies & quadragies octies*, 1194791*l.* 3*s.* 4*d.*

Conſidering the Magnificence of their Houſes, I ſhould be apt to think that both the Materials and Workmanſhip were cheap. [l] *M. Lepidus*'s Houſe was the firſt that had a Marble Door-caſe. [m] Afterwards they had gilded ones, or rather plated with Gold: [n] Then they began to caſe their Houſes with Marble: I think it was *Mamurra*, *Cæſar*'s Maſter-Carpenter in *Gaul*, that built the firſt of this kind. [o] Afterwards they gilded their very Walls. [p] Within their

g Μυριάδων ἑπτὰ ἡμίσεως. h Μυριάδων πεντήκοντα καὶ διακοσίων. Plutarch. in Mario.

i M. Lepido & Q. Catullo Coſſ. ut conſtat inter diligentiſſimos authores, domus pulchrior non fuit Romæ quam Lepidi ipſius: at hercule intra annos triginta quinque, eadem centeſimum locum non obtinuit. Plin. lib. 36. cap. 15. k Publius Clodius quem Milo occidit, centies & quadragies octies domo emptâ habitavit. Plin. lib. 36. cap. 15. l Plin. lib. 36. cap. 6. m Hieronymus in Epiſt. ad Marcellam. n Fabianus Papirius apud Senecam Rhetorem. Primum Romæ parietes cruſta Marmoris operuiſſe totius domus ſuæ in Cælio Monte Cornelius Nepos tradidit Mamurram Formiis natum, Equitem Romanum, Præfectum fabrûm C. Cæſaris in Gallia Plin. lib. 36. cap. 6. o Plin. lib. 33. cap. 3. Hieronymus in Epiſt. ad Gaudent. Petronius, ædificant auro. p Parietes Tyriis & Hiacynthinis & illis regiis velis, quæ vos operoſe reſoluta tranſfiguratis, pro picturâ abutuntur. Tertullian De Habitu Mulierum.

their Houſes were coſtly Hangings, of *Tyrian* Dye. [q] Marble Pillars with gilded Capitals. [r] The *Villa Gordiana* had a Periſtile of 200 Pillars. [s] They had Fountains of variegated Marble in their Rooms. [t] Their Houſes ſtood upon as much Ground as their Anceſtors were allowed for Eſtates, *viz.* four *Jugera*, or 2½ *Engliſh* Acres. [u] There were private Houſes like Cities. [x] They had Orchards and Woods on the Tops of their Houſes, beſides that they were of an immoderate height, [y] which was confined afterwards by *Auguſtus* to 70 *Roman* Feet, and [z] by *Trajan* to 60.

It appears from ſome fragments of a Plan of *Rome*, made in the time of *Septimius Severus*, that there were a great many *Inſulæ* or Iſlands, which conſiſted not always of one great Palace, but likewiſe of Houſes of Artificers joined to it. The Magnificence of *Rome* was extreamly encreas'd in *Auguſtus*'s Reign, who, as it is commonly ſaid, *Luteam invenit, Marmoream reliquit*, that he found it Brick, and left it Marble. We know little of the form either of the outſide or the inſide of theſe palaces; we have the names of ſeveral parts of them, as the *Veſtibulum*, *Atrium*, *Triclinia*, *Cœnationes*, *Cœnacula*; and we can judge from paſſages of Authors, ſuch as thoſe above-mentioned, that they were very magnificent. What the *Romans* called *Veſtibulum*, was no part of the Houſe, but the Court or Landing-place between it and the Street; which *Gallus apud Aulum Gellium* explains thus, *Veſtibulum eſſe dicit non in ipſis ædibus, neque partem ædium; ſed locum ante januam domus vacuum per quem a via aditus acceſſuſque ad ædes eſt. Cum dextra ſiniſtraque januam tecta ſunt viæ juncta, atque ipſa janua procul via eſt area vacanti interſita.* *Suetonius* tells us, that the *Coloſſus*, a Statue of *Nero*, 120 Feet high, ſtood in the *Veſtibulum*, which was ſo large that it had three *Portico's*, each a Mile in length. *Tanta laxitas ut Porticus*

[q] Hieronymus ad Gaudent. [r] Capitolinus in Gordiano. [s] Statius in Tyburtino
An picturatâ lucentia marmora venâ
Mirer, & emiſſa per cuncta cubilia lympha.
[t] Valerius lib. 4. cap. 4. Ei quatuor jugera arranti non ſolum dignitas patris-familias conſtitit, ſed etiam Dictatura delata eſt.—Anguſte ſe habitare nunc putat, cujus domus tantum patet, quantum Cincinnati rura patuerunt.
[u] Salvianus in Eccleſia Cathol. Ædificia privata laxitatem Urbium magnarum vincentia.
[x] Seneca Epiſt. 122. Non vivunt contra naturam? qui pomaria in ſummis turribus ferunt, quorum ſilvæ in tectis Domorum ac faſtigiis nutant. [y] Strabo lib. 5. [z] Aurelius Victor in Epitome.

ticus triplices milliares haberet. Theſe three Courts it ſeems were called the *Veſtibulum.* The *Atrium* was a part of the Building, and diſtant from the *Veſtibulum, Virgil. Æneid.* 1.

Crateras magnos ſtatuunt & vina coronant.
Fit ſtrepitus tectis, vocemque per ampla volutant
Atria.

Servius on this paſſage tells us that *Virgil* alludes to the Cuſtom of the ancient *Romans,* who of old, as *Cato* informs us, *in Atriis duobus ferculis epulabantur,* ſupp'd in the Porch on two Diſhes.

Their eating Rooms were called *Cœnationes, Cœnacula, Triclinia.* In a paſſage of the Deſcription of *Pliny*'s Country-houſe there are mention'd *duæ diætæ,* two little eating Rooms, which are diſtinguiſh'd from the *Cœnatio,* a great ſupping Room, or as we call it dining Room. Authors place the *Cœnaculum* at the top of the Houſe, it was the Term for the eating Room of the lower ſort of people. Every body knows that the *Triclinium* was ſo called from the Figure and Beds on which the Gueſts lay in a recumbent poſture. It is uſed moſt frequently for the Table and Beds, ſometimes for the *Cœnatio* or Room it ſelf. Their Bed-chambers were called *Cubicula.* It is thought they had no Chimneys, but were warm'd with Coals on Braſiers. It has been a great queſtion among the Antiquaries, whether the Ancients had Chimneys; a negative Argument is, that *Vitruvius* has left us no Deſcription of the manner of their Conſtruction. It is certain the poorer ſort let the Smoak go out at the Window. *Cato* ſpeaks of anointing the wood with a certain *Amurca,* Foam of Oyl, which kept it from ſmoaking, which ſeems to me impoſſible. That they made Fires of wood it's certain. *Horat.* 1. *Car.* 9.

Diſſolve frigus, ligna ſuper foco
Large reponens ——

Therefore

Therefore it would ſeem they had ſome paſſage for the Smoke. *Ulyſſes* in *Calypſo*'s Cave longed to ſee the Smoke of the Houſes of *Ithaca*. *Suetonius* tells us, that when *Vitellius* was inaugurated, the Chimney firſt took fire, and then the Dining-room. *Cum ignis ſtatim Caminum incendiſſet, Triclinium deinde abſumpſit.* And the word in modern Languages ſignifying Chimney, comes from *Caminus*. That which made Chimneys ſo rare amongſt the ancient *Romans*, was their manner of warming their Houſes, as *Seneca* tells us *Epiſt.* 90. *Per impreſſos parietibus tubos per quos circum funderetur calor, qui ima ſimul & ſumma feriret æqualiter*, by Pipes buryed in the Walls, which from one great Fire warm'd all the Rooms equally.

There are likewiſe diſputes about the Windows of the Ancients; that they had Windows is certain. The Light was let in by a tranſparent Stone called *Speculum*. *Seneca* ſpeaks of it as an invention of his time. This Stone was us'd by the younger *Pliny* in his Country-Houſe Thoſe Stones were dug in *Segobriga* in *Spain*, as *Pliny* tells us *lib.* 22. *cap.* 33. And afterwards in *Cyprus*, *Cappadocia*, *Africa* and *Sicily*. *Nero* within his golden Palace built a Temple of this Stone, which receiv'd Light enough in the day-time without any Windows. This Stone might be a ſort of *Alabaſtre*, but more tranſparent than ours, which does not grow pellucid till it is cut very thin. The moſt common Materials of ancient Windows, was thin Canvaſs or Cloth. *Montfaucon* ſpeaks of a Book that was going to be publiſh'd by one *Bonarota* a *Florentine* Senator, which proves that the Ancients had Glaſs Windows. I have not ſeen that Treatiſe, and conſequently cannot judge of his Reaſons. I am of M. *Perrault*'s Opinion, that the polite *Auguſtus* had neither a Shirt to his Back, nor Glaſs to his Windows.

The Furniture of their Houſes muſt have been coſtly. *Martial. Epigr. in Quintum* tells us that *Quintus*'s Furniture, which was but in a narrow Compaſs, coſt him above 8072 *l.*

Conſtat decies tibi non ſpatioſa Supellex.

They were nice and coſtly in their Chairs and Lamps. Their *Lecti Cubiculares*, or their Beds for ſleeping, ſo called to diſtinguiſh them from their *Tricliniares* or Dining-beds, came at laſt to be very coſtly, with Feet of Ivory, Silver, Gold, and precious Stones. And their Mattreſſes were made of Feathers, Straw and other Herbs; ſometimes of Furs, which came from *Gaul*: they were rais'd ſo high, as to be mounted on by Steps, as *Pliny* tells us, *lib.* 20. There is no mention made of their having Curtains.

It is ſomewhat foreign to my preſent purpoſe to enter into the Expences of the publick Buildings; [a] the Reader may ſee at the bottom of the Page a Deſcription of *M. Scaurus*'s Theatre by *Pliny*. I am not Architect enough to give the Reader a right *Idea* of it; only ſo far we may gather from the deſcription, that there was a triple Scene in height one above another, conſiſting of 360 Pillars, the loweſt of Marble, the middle of Glaſs, (by an unheard-of piece of Luxury, as the Author expreſſeth it) and the upper of *Tabulæ inauratæ*, which I cannot tell how to tranſlate; the literal Senſe is gilded Tables or Pictures; for *Harduin*'s *Pliny* hath in this place a different reading from the others. The loweſt Row of Pillars were 42 Feet high, and there were 3000 brazen Statues betwixt the Pillars: the Theatre held 80000 Men. It was the ſame *M. Scaurus* who having carried ſome of his ſuperfluous Furniture and Stores to his Country Houſe at *Tuſculum*, which by the malice of his Slaves was burnt, loſt in that one Article *Millies H. S.* or 807291 *l.* 13 *s.* 4 *d.*

Pliny prefers this Theatre to *Nero*'s golden Houſe, which muſt have coſt an immenſe Sum, ſince [b] *Otho* laid out in finiſhing ſome part of it *quingenties H. S.* 403645 *l.* 16 *s.* 8 *d.*

It

[a] Scena ei triplex in altitudinem 360 columnarum, in ea civitate, quæ ſex Hymettias non tulerat ſine probro civis ampliſſimi. Ima pars Scenæ e marmore fuit: media e vitro, inaudito etiam poſtea genere Luxuriæ: ſumma e tabulis inauratis. Columnæ, ut diximus, imæ duodequadragenum pedum. Signa ærea inter columnas, ut indicavimus, fuerunt tria millia numero. Caveæ ipſa cœpit hominum LXXX millia: cum Pompeiani Theatri toties multiplicatâ urbe, tantoque majore populo, ſufficiat large quadraginta millibus. Sed & reliquus apparatus, tantus Attalica veſte, tabulis pictis, cæteroque choragio fuit, ut in Tuſculanum villam reportatis quæ ſuperfluebant quotidiani uſus deliciis, incenſa villa ab iratis ſervis, concremaretur ad H-S millies. Plin. 36. cap. 15. [b] Nec quicquam prius pro poteſtate ſubſcripſit, quam quingenties ſeſtertium ad peragendum auream domum.

It is commonly believed that the *Romans* had the art of gilding after our manner, but ſome ſort of their inauration or gilding muſt have been much dearer than ours, ſince the gilding of the Capitol coſt 12000 *Talents*, 2.325000 *l.*

CHAP. VIII.

Of the Price of Land.

I Have endeavour'd, by comparing paſſages of Authors together, to get ſome light into the price of Lands, and the yearly rent of them. No doubt there were lands of different values, according to their different goodneſs and ſituation: yet there are ſome things mentioned of middle prices, which will ſhew us in what proportion the value of their Lands ſtood in regard to thoſe of our own Country.

[a] *Columella* ſays, that a Vine-dreſſer who could look after 7 *Jugera*, was commonly ſold for 8000 *H. S.* 64*l.* 11*s.* 8*d.* A Sum which he ſaith was ſufficient to buy 7 *Jugera* of indifferent Land: conſequently the *Jugerum* of ſuch Land was worth 9*l.* 4*s.* 6½*d.*

The *Roman Jugerum* was to the *Engliſh* Acre near as 10 to 16; at this rate the *Engliſh* Acre of ſuch Land was worth 14*l.* 15*s.* 3*d.*

[b] *Pliny* mentions the purchaſe of a Vineyard in the *Nomentan* Land, which at a cheap rate came to 60000 *H. S.* 4843*l.* 15*s.* ×

Budæus reckons it was a *Centuria*. The [c] *Centuria* conſiſted at firſt of 100 *Jugera*; afterwards, by a continuation of the ſame

 word,

[c] Plutarch. in Publicola.

[a] Vinitor licet ſit emptus ſex vel potius Seſtertiis octo millibus, cum ipſum ſolum ſeptem jugerum totidem millibus nummorum partum ſit. Columell. lib. 14. [b] Vide Plinium lib. 14. cap. 4. & Budæum de Aſſe. lib. 4.

[c] Centuriam nunc dicimus (ut Varro ait) ducentorum jugerum modum; olim autem ab centum jugeribus vocabatur centuria, ſed mox duplicata nomen retinuit.

× In Hardouin's Pliny it is DC i.e. 600,000 which is ten times as much as the Doctor has set it at. and perhaps the Rus was ten times as much as Budæus has made it. I find plainly since that it is an error of the preſs and ought to be 600,000. Nomentan Land is a bad translation, it had better have been Territory of Nomentum. Langwith.

word, and an impropriety of Speech, it came to be reckon'd 200 *Jugera*: tho' according to *Cato*, a *Centuria* of a Vineyard conſiſted ſtill of 100 *Jugera*. At this rate, a *Jugerum* of this Vineyard came to 48 *l.* 8 *s.* 9 *d.* And an *Engliſh* Acre to 77 *l.* 10 *s.*

[d] There is another paſſage in *Columella*, which makes the common or middle yearly Rent of a *Jugerum* of Paſture, Meadow or Copſe Land 16 *s.* 1½ *d* in *Italy*. At this Rate the Rent of an Acre comes to 1 *l.* 5 *s.* 10 *d.*

[e] Land was reckon'd commonly at 25 Years Purchaſe, for the Lands of the Government were ſo let, paying according to the Rate of 4 *per Cent.*

[f] A Purchaſe of 500000 *Nummi* paid 20000 *Nummi* a Year: X at this rate, according to the forementiond Rent, the Purchaſe of an *Engliſh* Acre of ſuch Land, was worth 32 *l.* 5 *s.* 10 *d.*

[g] There is a paſſage in *Varro*, which gives further light in this matter. He introduces *Merula* affirming that his *Villa* brought him in yearly by fat Birds 60000 *Nummi*, 484 *l.* 7 *s.* 6 *d.* which is twice as much (ſaith he) as the Rent of your two hundred *Jugera* at *Reate*; conſequently 200 *Jugera* brought *Axius*, (that was the Proprietor's name) the half of that Sum, *viz.* 242 *l.* 3 *s.* 9 *d.*

Then the yearly Rent of a *Jugerum* was 1 *l.* 4 *s.* 2½ *d.*

At this rate, the Rent of an *Engliſh* Acre comes to 1 *l.* 18 *s.* 8 *d.* which reckon'd at 25 Years purchaſe would make it worth *per* Acre 48 *l.* 6 *s.* 8 *d.*

Tully mentions in his Epiſtles to *Atticus* a very cheap Purchaſe, as an inſtance of the badneſs of the times, it comes *per* Acre only to 1 *l.* 9 *s.* 8 *d.*

[h] The price of Land was conſiderably increaſed by the great Treaſure that was brought to *Rome* in *Auguſtus*'s Reign.

As

[d] Prata, Paſcua & Sylvæ, ſi centenos ſeſtertios ſingula jugera efficiant, optime Domino conſulere videntur. Colum. lib. 3. [e] Hygen. de Limitibus. Vectigal ad rationem uſuræ trientes. [f] Plin. lib. 7. Epiſtolarum. [g] Varro lib. 3. cap. 2. Atque in hac villa qui eſt Ornithon, ex eo uno quinque millia ſcio veniſſe Turdorum denariis ternis, ut ſexaginta millia ea pars reddiderit eo anno villæ, bis tantum quam tuus fundus ducentum jugerum Reate reddit. [h] Sueton. in Auguſto. Invecta urbi Alexandrina triumpho Regia gaza tantam copiam rei nummariæ effecit, ut fœnore diminuto, plurimum agrorum pretii acceſſerit.

X See Smith 228. Langwith.

As to the value of Ground in the City, there is a remarkable paſſage in [i] *Suetonius*, he tells you that the Ground upon which *Cæſar* built his *Forum*, coſt *Millies H. S.* 8072911. 13 *s.* 4 *d.*

I cannot well ſay what were the Dimenſions of this *Forum*, but it muſt have been leſs than the *Circus* built by *Cæſar*, of which [k] *Pliny* hath given the dimenſions, *viz.* 3 *Stadia* in length, and one in breadth, and after this he adds that the whole with Buildings round, ſtood only on four *Jugera*; which muſt be a falſe reading, and I wonder that Authors have not obſerved it; for inſtead of *Jugerum quaternum*, it ought to be *quadraginta*. There are in a *Roman Stadium* 625 *Roman* Feet, conſequently 3 times that number, multiplied in it ſelf, makes an oblong of 1171875 ſquare *Roman* Feet, this divided by 28800 makes above 40 *Roman Jugera*. It's true the *Circus* it ſelf or the *Ellipſis* inſcribed within that oblong would not perhaps be above 32 *Jugera*, but ſince he reckons in the buildings about, which it's likely took up the whole Space, the computation at 40 *Jugera* is pretty exact. Now reckoning the *Forum* of the ſame bigneſs, altho' it could not be near ſo much; and that it ſtood upon 40 *Roman Jugera*, that is, 25 *Engliſh* Acres of Ground, it would make it *per* Acre, about 32291 *l.* and the yearly Rent *per* Acre, at 25 Years purchaſe, or 4 *per Cent.* would be near 1292 *l.* 1292 Feet in Front, and about 33 ½ deep makes an Acre; at this rate an Acre of this *Forum* would bring in Ground-rent 20 Shillings a foot. But the *Forum* was not near ſo ſpacious, for the Antiquaries for ſome reaſon or another make it the leaſt of all the *Fora*. And indeed, comparing it with the draught of *Nerva*'s *Forum*, it could not take up 2 Acres: but allowing it 5; at this rate a Foot in Front, and 33 ½ deep, would be five times as dear, that is, would bring in a Ground-rent of 5 Pound.

i Sueton. in Cæſare. Forum de manubiis inchoavit; cujus area ſuper H S. millies conſtitit. k Nam ut Circum maximum a Cæſare Dictatore exſtructum, longitudine ſtadiorum trium, latitudine unius, ſed cum ædificiis jugerum quaternûm (*quadraginta*) ad ſedem CCLX millia hominum inter magna opera dicamus.

CHAP.

CHAP. IX.

The Price current of Drugs, as they ſtood at Rome, *moſt of them in* Pliny's *Time per* Roman *Pound, which is* ¾ *of the* Engliſh Averdupois.

[a] *Sandarach per* Pound, 5 *Aſſes*, 3 $\frac{7}{8}$*d.*

[b] *Sinopis*, a ſort of *Rubrick* or *Rudle*, 8 *Aſſes*, 6 $\frac{1}{4}$*d.*

Ditto the better ſort, 30 *Aſſes*, 1*s.* 11 $\frac{1}{4}$*d.*

[c] *Armenian* purple 30 *HS.* 4*s.* 10 $\frac{1}{8}$*d.*

[d] *Indian* Purple from one *Denarius*, or 7 $\frac{1}{4}$*d.* to 30 *Denarii*, 19*s.* 4 $\frac{1}{8}$*d.*

[e] *Pelagium*, the Juice of one ſort of Fiſhes that dyed Purple, 50 *HS.* 8*s.* 0 $\frac{7}{8}$*q.*

[f] *Buccinum* the Juice of the other Fiſh that dyed purple, 100 *HS.* 16*s.* 1 $\frac{1}{2}$*d.*

Harduin reads theſe two paſſages not of the Pound, but the 100 Pounds. For the Senſe of *Pliny* in that place is, that it was ſurprizing that the purple Dye ſhould be ſo dear, when the Drug that it was made of was ſo cheap.

Pliny ſays, that to dye 50 Pounds of Wool, was required 200 Pounds of *Buccinum*, and 110 of the *Pelagium*: that proportion of Mixture making the true Dye. According to the firſt reading, by the Pound Weight, it would make the dying of a Pound come to 4*l.* 2*s.* 4 $\frac{1}{2}$*d.* which in the Chapter about Cloaths was reckoned by the *Engliſh* Pound. There is ſome Miſtake in the numbers of

[a] Plin. lib. 35. cap. 6. Aſſes quini in libras. [b] Ibid. Aſſes octoni in libras. [c] Ibid. Triginta nummi in libras. Ibid. cap. 5. A ſingulis denariis ad triginta. [e] Lib. 9. cap. 40. quinquaginta nummi. [f] Ibid. centeni nummi.

of *Pliny* in this Place. And inſtead of L, which *Harduin* puts in at a venture, it would be more conſiſtent if you put in a C, which you ſee would reduce it to half price: [g] for *Pliny* makes the price of the Violet-purple 3 *l.* 4 *s.* 7 *d.* which I believe is to be explained of the Pound of Wool dyed.

[h] *Cinnabar* 50 *HS.* 8 *s.* 0 ½ *d.*

Tarentine red purple, price not mentioned.

[i] The *Tyrian* double Dye, 1000 *Denarii*, 32 *l.* 5 *s.* 10 *d.*

[k] *Melinum*, a ſort of Colour that came from *Melos*, one *Nummus*, 1 $\frac{1}{16}$ *d.*

[l] *Paretonium*, a ſort of Colour that came from *Ægypt*, very laſting, 6 *Denarii*, 3 *s.* 10 ½ *d*

[m] *Ladanum* a Gumm, 40 *Aſſes*, 2 *s.* 7 *d.*

[n] *Opopanax*, 2 *Denarii*, 1 *s.* 3 ½ *d.*

[o] Gum *Ammoniack*, 40 *Aſſes*, 2 *s.* 7 *d.*

[p] *Galbanum*, 5 *Denarii*, 3 *s.* 2 ½ *d.*

[q] True *Bdellium*, 3 *Denarii*, 1 *s.* 11 ¼ *d.*

[r] *Myrrh ſativa* from 10 *Denarii*, 6 *s.* 5 ½ *d.* to 11 *Denarii* 8 *s.* 1 ¼ *d.*

[ſ] Ditto *Erythrean* from 11 *Denarii*, 8 *s.* 1 ¼ *d.* to 16 *Denarii*, 10 *s.* 4 *d.*

[t] Ditto *Troglodytick* (*nucleo*, *id eſt*) granulated, 16 *Denarii* 10 *s.* 4 *d.*

[u] Ditto ſweet-ſcented, 14 *Denarii*, 9 *s.* 0 ½ *d.*

[x] Frankincenſe, worſt ſort, 3 *Denarii*, 1 *s.* 11 ¼ *d.*

[x] Ditto, ſecond ſort, 5 *Denarii*, 3 *s.* 2 ½ *d.*

[x] Ditto, beſt ſort, 6 *Denarii*, 3 *s.* 10 ½ *d.*

[y] *Storax*, 19 *Denarii*, 12 *s.* 3 ½ *d.*

[z] *Chio*, white *Maſtick*; 20 *Denarii*, 12 *s.* 11 *d.*

[a] Black

[g] Lib. 9. cap. 39. Libra denariis centum. [h] Lib. 3. cap. 7. quinquaginta nummi Cinnabari pretium. [i] Ibid. mille denariis in libras. [k] Lib. 35. cap. 6. Seſtertiis ſinguiis in libras. [l] Ibid. Paretonii optimi libra VI denariis. [m] Plin. lib. 12. cap. 17. XL. aſſes pretium in libras. [n] Ibid. cap. 26. X bini. [o] Ibid. cap. 23. XL aſſes. [p] Ibid. cap. 26. X. V permutatur in libras. [q] Ibid. cap. 9. Bdellii ſinceri Libra III. Denariis. [r] Ibid. cap. 16. X. XI. [ſ] Ibid. cap. 16. XI ad XVI. [t] Ibid. Troglodytici nucleo XVI. [u] Ibid. odorarii XIV. [x] Ibid. cap. 14. X. III, V, VI. [y] Ibid. cap. 25. X. XIX. [z] Ibid. cap. 17. XX Denariis.

[a] Black Pepper, 4 *Denarii*, 2 *s.* 7 *d.*
[a] White Pepper, 7 *Denarii*, 4 *s.* 6½ *d.*
[a] Long Pepper, 15 *Denarii* 9 *s.* 8¼ *d.*
[b] *Cardamomum*, 12 *Denarii*, 7 *s.* 9 *d.*
[c] *Amomum* whole, 60 *Denarii*, 1 *l.* 18 *s.* 9 *d.*
Ditto, ground or bruiſed, 58 *Denarii*, 1 *l.* 17 *s.* 5½ *d.*
[d] *Myrobalanus*, 2 *Denarii*, 1 *s.* 3½ *d.*
[e] Ginger, 6 *Denarii*, 3 *s.* 10½ *d.*
[f] Sweet *Juncus*, 11 *Denarii*, 7 *s.* 1½ *d.*
Ditto, the beſt, 15 *Denarii*, 9 *s.* 8¼ *d.*
[g] *Coſtus*, 16 *Denarii*, 10 *s.* 4 *d.*
[h] *Indian Spikenard*, ſmall leaf, 75 *Denarii*, 2 *l.* 8 *s.* 5¼ *d.*
[h] Ditto, middle leaf, 60 *Denarii*, 1 *l.* 18 *s.* 9 *d.*
[h] Ditto, large leaf, 50 *Denarii*, 1 *l.* 12 *s.* 3½ *d.*
[h] Ditto, the Spike, 90 *Denarii*, 2 *l.* 18 *s.* 1½ *d.*
[i] Ditto, *French*, 3 *Denarii* 1 *s.* 11½ *d.*
[k] *Xylocinnamomum*, 20 *Denarii*, 12 *s.* 11 *d.*
[l] The Juice of Cinnamon, × that is the expreſſed Oyl, ſometimes ſold for 1000 *Denarii*, 32 *l.* 5 *s.* 10 *d.*
[m] *Iſocinnamon*, a ſort of *Caſſia*, reckon'd equal in value to *Cinnamon*, 300 *Denarii* 8 *l.* 13 *s.* 9 *d.*
[n] *Malobathrum* had riſen from one *Denarius* to 300, that is to 8 *l.* 13 *s.* 9 *d.*
The Oyl of it only 60 *Denarii*, 1 *l.* 18 *s.* 9 *d.* †
Cinnamomum Camacum, the expreſſed Juice of a Nut, which they mixed with precious ointments, quite different from what [o] *Pliny* calls the *Succus Cinnamomi*, 40 *Aſſes*, 2 *s.* 7 *d.*
[p] *Sericatum*, another Oyl that they mixed in their Ointments 6 *Denarii*, 3 *s.* 10½ *d.*

[q] *Oleum*

[a] Ibid. 7. IV Denarii. VII Denarii, XV Denarii. [b] Ibid. cap. 13. XII Denarii. [c] Ibid. cap. 13. Uvæ Amomi LX Denarii, friati LVIII. [d] Ibid. cap. 21. II Denarii. [e] Ibid. cap. 7. VI Denarii. [f] Ibid. cap. 22. XI. ad XV. [g] Ibid. cap. 12. XVI Denarii [h] Ibid. cap. 12. Spicæ folium Microſphæræ LXXV Denarii. Meſoſphæræ in libras LX. Hadroſphæræ L. Spicæ in libras XC Denarii. [i] Nardi Gallici libra III Denariis. [k] Ibid. cap. Xylocinnamomi pretium in libras Denarii XX. [l] Ibid. cap. 19. Succus Cinnamomi libra quondam M. Denariis. [m] Ibid. cap. 19. CCC Denarii. [n] cap. 26. Malobathri pretium prodigio ſimile, a ſingulis denariis ad CCC pervenere libras. Oleum autem ipſum in libras X. LX. [o] Plin. lib. 1. cap. 28. Aſſes XL. [p] Ibid. cap 25. VI Denarii.

× I cannot find the Succus Cinnamomi in the place which he quotes, but only Cinnamon it-ſelf. Langwith.

† How Malobathrum ſhould be worth 300 Denarii, and the Oil of it but 60 I cannot imagine. There muſt be either a fraud in Pliny, or elſe the Oil muſt have been made by ſome other method than by ſqueezing the Cinnamon, as I imagine. Langwith.

[o] Plin. lib. 1. cap. 28. Oleum autem ipſum in libras X. LX. S.A.

[q] *Oleum Cyprium*, made of an *Ægyptian* Tree, 5 *Denarii*, 3 *s.* 2 ½ *d.*

[r] *Aſparathos*, a root uſed for precious Ointments, 5 *Denarii*, 3 *s.* 2 ½ *d.*

[s] *Opobalſamum*, 300 *Denarii* the *Sextarius*, *per Engliſh* Pint 8 *l.* 2 *s.* 1 ½ *d.* This was the price as it was ſold by the Publick: [t] but as it was adulterated, it brought the owners *per* Pint 27 *l.* 0 *s.* 4 ½ *d.*

[u] There was likewiſe a *Xylobalſamum*, which was an Oyl made of the boiling of the *Sarmenta* of the Tree, that was ſold for 6 *Denarii*, 3 *s.* 10 ½ *d.*

[x] The Oyl of the *Seſama*, an *Indian* grain and uſed for Sauce, *per* Pint 5 *s.* 6 *d.* ×

[y] *Garum*, a Sauce made of Fiſh, much uſed by the *Romans*, *per* Pint, 11 *s.* 5 ½ *d.*

CHAP. X.

Of the Price of Slaves.

ANother way of determining the quantity of their Riches is, by finding out the price of Labour, and the value of certain pieces of Workmanſhip. In order to come at that, we muſt begin with the prices of their Slaves.

[z] The price of an ordinary Slave in *Cato major*'s time was 375 *Drachms*, 48 *l.* 8 *s.* 9 *d.*

It was a principle with him not to entertain any that was delicate, but ſtrong Fellows fit for country Labour.

q Ibid. cap. 24. V Denarii. r Ibid. V Denarii. s Plin. lib. 5. cap. 25. t Plin. lib. 12. cap. 25. u Ibid. cap. 25. VI Denarii. x Quint. Curti. lib. 5. CCXL Denarii, Amphora. y Plin. lib. 31. cap. 8. ſingulis millibus nummum permutantibus congios fere binos. z Plutarch in Catone majore.

× For 5/6, read 5 Denarii, which according to him amounted to only 3/23/4. I wish he had told the Chapter as well as book of Q. Curtius, for I cannot find the place. Langwith.

[b] The price of a Vine-dreſſer was 8000 *Seſtertii*, 64 *l.* 11 *s.* 8 *d.* Thoſe were common prices; but ſuch as exerciſed more polite Arts, and were entertained for Fancy and Luxury, were much dearer.

The *Anagnoſtæ* Slaves, or ſuch as could read, were dear. One [c] *Calviſius Labinus*, who thought he could purchaſe the Character of a learned Perſon by having a learned Equipage, bragg'd that he had ſeveral ſuch *Anagnoſtæ* Slaves, none under 100000 *Nummi*, 807 *l.* 5 *s.* 10 *d.*

[d] *Julius Cæſar*, who was really skilled in polite arts without Affectation, bought ſeveral ſuch Slaves at very great prices.

[e] *Pliny* reckons the higheſt price that ever was paid for a man born in Slavery, was for *Daphnis* the Grammarian. There are ſeveral different readings of this paſſage, but *Harduin* reads it *Seſtertiis ſeptingentis*, which makes the price at 5651 *l.* 0 *s.* 10 *d.* Yet afterwards he mentions a much higher price, [f] *viz.* that for which *Nero* manumitted the *Diſpenſator* of *Tiridates*. (*Diſpenſator* according to the way of ſpeaking of that time was properly a Caſh-keeper or Privy-purſe.) In *Harduin's Pliny* it amounts to *Centies tricies H. S.* 104947 *l.* 18 *s.* 4 *d.*

But *Pliny* adds this was not as a bargain of civil Commerce, but the price of a Priſoner of war.

Among Slaves who exerciſed polite arts, none ſold ſo dear as Stage-players or Actors, which [g] *Pliny* ſaith was not to be wondered at, ſince they gained ſo much to their Maſters. *Roſcius* particularly could gain yearly 500 *Seſtertia*, 4036 *l.* 9 *s.* 2 *d.* [h] and *per diem* when he acted 4000 *Nummi*, 32 *l.* 5 *s.* 10 *d.*

The numbers in *Cicero's* Oration for *Roſcius* are uncorrect.

[i] *Callio-*

[b] Columella lib. 3. octo millibus ſeſtertiis Vinitor emptus. [c] Seneca lib. 4. Epiſt. ad Lucilium. Ut Grammaticos haberet Analectos cum dixiſſet Sabinus, centenis millibus ſibi conſtare ſingulos ſervos. [d] Suetonius in Cæſare. Servitia recentiora politioraque immenſo pretio comparavit. [e] Plin. lib. 7. cap. 39. Pretium hominis in ſervitio geniti maximum ad hanc diem (quod equidem compererim) fuit Grammaticæ artis Daphni, Gnatio Piſaurenſe vendente, & M. Scauro Principe civitatis IIs. DCC. licente. [f] Plin. ibid. IIs. CXXX. manumiſit. [g] Plin ibidem. Quippe cum jam apud majores Roſcius Hiſtrio IIs. D. annua meritaſſe prodatur. [h] Macrobius.

[i] *Calliodorus* mentioned by *Martial* ſold his Slave for a Supper very cheap, 10 *l.* 10 *s.* 8 ¼ *d.*

[k] A *Morio*, or Fool, was ſold for 161 *l.* 9 *s.* 2 *d.*

[l] The price of Slaves was regulated afterwards by *Juſtinian* at much lower Rates. The loweſt at 10 Solids, and the higheſt at 80. The Solids were the *Aurei* of that time, and 100 Solids made *dena*, or 10 *Seſtertia*, *viz.* 80 *l.* 14 *s.* 7 *d.*

But according to the weight of them, and the value of Gold at this time, they would be worth 87 *l.* 8 *s.* 6 $\frac{6}{7}$ *d.*

We ſhall chuſe the ancient proportion; ſo that it may be ſaid according to *Juſtinian's* regulation, the loweſt price of a Slave was 10 *Solids*, 8 *l.* 1 *s.* 5 ½ *d.* And the higheſt, 80 *Solids*, 64 *l.* 11 *s.* 8 *d.*

[m] For Example, the price of a Slave, Man or Woman, under ten years old, was 8 *l.* 1 *s.* 5 ½ *d.*

[n] The price of one above ten years old, was double that, *viz.* 16 *l.* 2 *s.* 11 *d.*

[o] The price of Slaves of both Sexes that had Trades, was 30 *Solids*, 24 *l.* 4 *s.* 4 ½ *d.*

[p] That of Eunuchs under ten Years old was the ſame, *viz.* 24 *l.* 4 *s.* 4 ½ *d.*

[q] The price of *Servi Notarii*, and Eunuchs above ten years old, was 50 *Solids*, 40 *l.* 7 *s.* 3 ½ *d.*

[r] The price of an Eunuch, if a Tradeſman, was 70 *Solids*, 56 *l.* 10 *s.* 2 ½ *d.*

The Expences of the ancient *Romans* in Slaves muſt have been very great, for they had Trains of them as big [s] as Armies, [t] 10 or 20000 Slaves, not for Gain but Show.

[i] Addixti ſervum nummis here mille trecentis,
Ut bene cœnares Calliodore ſemel.
Mart. lib. 10. Epigr.

[k] Morio dictus erat: viginti millibus emi.
Redde mihi nummos Gurgiliane, ſapit.
Martial.

[l] Juſtinianus in lege ſedecim. Minimum autem pretium non infra viginti ſolidos, maximum non ſupra octoginta. [m] Lib. 37. de peculio, &c. L. 3. C. commun. de legat. & fidei Commiſſis. [n] Lib. 6. C. conſtitut. 43. [o] Lib. 6. Cod. conſtit. 43. [p] Ibid. [q] Ibid. [r] L. 3. C. commun. de Legat. & commiſſ. [s] Hieronymus. Epiſt. ad Furiam. [t] Athenæus lib. 6. μυριοι ἢ δὶς μυριοι.

CHAP. XI.

Of the Prices of Pictures, Statues, and other Pieces of Workmanſhip, of Arts, Profeſſions, &c.

THE *Romans* at firſt were very ignorant of the value of Pictures; and even as low down as *A. U.* 565. [a] *L. Mummius* ſirnamed *Achaicus*, ſeems to have been no great *Virtuoſo* in this way. For when King *Attalus* offered to redeem the Picture of *Bacchus*, painted by *Ariſtides*, for what *Pliny* calls *ſexies Seſtertium*, or 4843 *l.* 15 *s.* *L. Mummius* imagining there was ſome wonderful vertue in the Picture, ſtopt it, to the great diſcontent of that King. [b] *Pliny* in another place ſpeaking of a Picture of *Ariſtides*, ſaith it was bought or redeemed by King *Attalus* for 100 *Talents*, 19375 *l.* Whether it were the ſame Picture or not, with a miſtake of the price in one place, I will not determine.

Afterwards the *Romans* came to be better acquainted with the value of Pictures. [c] The *Medea* and *Ajax* of *Timomachus* were bought by *Julius Cæſar* for 80 *Talents*, 15500 *l.*

[d] *Hortenſius* paid for *Cydia*'s *Argonauts* *H-S.* CXLIV. 1162 *l.* 10 *s.*

[e] *Agrippa* purchaſed two pieces of *Ajax* and *Venus* from the *Cyzicenians* for a ſmall price, *viz.* 12000 *Nummi*, 96 *l.* 17 *s.* 6 *d.*

And

[a] Nam cum in præda Rex Attalus VI millia Seſtertium emiſſet Ariſtidis Tabulam Liberum Patrem continentem, pretium miratus, ſuſpicatuſque aliquid in eâ virtutis, quod ipſe neſciret, revocavit Tabulam, Attalo multum querente. [b] Plin. lib. 7. cap. 38. Ariſtidis Thebani pictoris unam Tabulam centum Talentis Rex Attalus licitatus eſt. [c] Plin. ibid. — octoginta Talentis. [d] Plin. lib. 35. cap. 11. [e] Plin. ibidem. Verum eadem illa torvitas tabulas duas Ajacis & Veneris mercatus eſt a Cyzicenis HS. XII. M.

And yet every body wondered that a man of his rough Temper would give so much.

[f] The *Venus Anadyomene* (that is, issuing out of the Sea) was valued at a hundred *Talents* (for so much Tribute was remitted for it) 19375 *l.*

[g] The *Archi-Gallus* or High-Priest *Parrasius*, which *Tiberius* was so fond of, was valued at 60 *Sestertia*, 484 *l.* 7 *s.* 6 *d.*

[h] *L. Lucullus* bought the Copy of *Glycera*, *Pamphilus*'s Maid, the Original being painted by *Pamphilus* himself, for two *Talents*, 397 *l.* 10 *s.*

And to mention some prices given by the *Greeks*; [i] the 12 Gods of *Asclepiodorus* were purchased by *Mnason* the Tyrant for 30 *Minæ*, or 96 *l.* 17 *s.* 6 *d.* a-piece, the whole dozen amounting to 1162 *l.* 10 *s.*

This was no great price for a Piece of a Painter, whom *Apelles* himself admired for the Correctness of his drawing.

[i] The same *Mnason* paid more for his Heroes than his Gods, he gave to *Theomnestus* the Painter for each of them 100 *Minæ*, 322 *l.* 18 *s.* 4 *d.* The dozen of Heroes came to 3875 *l.*

[k] *Aristides* was employed to draw *Alexander*'s Battle with the *Persians*, in which there were a hundred figures, and bargained for no more than 10 *Minæ* a figure, which amounted in all to 3229 *l.* 3 *s.* 4 *d.*

Aristides was reckon'd the first man for Expression, but hard in his Colouring.

[l] *Apelles* was paid for his *Alexander* holding the Thunder (which was put up in the Temple of *Diana* at *Ephesus*) in weight, not in tale,

20

[f] Strabo lib. 14. Φασὶ δὲ τοῖς Κώοις ἀντὶ τῆς γραφῆς ἑκατὸν ταλάντων ἄφεσιν γενέσθαι τοῦ προσταχθέντος φόρου. [g] Plin. lib. 35. cap. 10. Pinxit & Archigallum, quam picturam amavit Tiberius Princeps, atque ut author est Decius Eculio, LX sestertiis æstimatam, cubiculo suo inclusit. [h] Plin. lib. 35. cap. 11. Hujus Tabulæ Exemplar, quod apographon vocant, L. Lucullus duobus talentis emit. [i] Plin. lib. 35. cap. 10. Eadem ætate fuit Asclepiodorus, quem in Symmetria mirabatur Apelles, huic Mnason tyrannus pro duodecem Diis dedit in singulos mnas tricenas: idemque Theomnesto in singulos Heroas mnas centenas. [k] Plin. lib. 35. cap. 10. Idem (Aristides) pinxit prœlium cum Persis, centum homines ea Tabulâ complexus, pactusque in singulos mnas denas a Tyranno Elatensium Mnasone. [l] Plin. lib. 35. cap. 10. Pinxit & Alexandrum magnum, fulmen tenentem, in Templo Ephesiæ Dianæ, viginti talentis.

20 Talents of Gold, *viz.* according to the decuple proportion 38750*l.* It would come to more if reckoned according to our proportion betwixt Gold and Silver. But *Harduin* reads *Talents* of Silver only.

I have mention'd ſome of the foregoing prices of Pictures, to ſhew the mannerof Painters bargaining by the number of figures.

[m] *Nicias* the Painter refuſed for *Necromantia Homeri*, 60 *Talents*, 11625*l.*

The *Romans* ſeem to have been better furniſhed with Statues and carved work, than fine Pictures. [a] There are multitudes of ſuch pieces recorded by *Pliny*, with the prices of very few of them. But we may eaſily conjecture they muſt have been pretty high; for a people ſo rich and ſo luxurious, would not balk their fancy in ſuch things. The moſt of their Statues were either brought from abroad, or made by *Greek* Artificers. Such of them as by the quantity or fineneſs of the Mettal were of immoderate prices, are not proper inſtances of the value of fine Workmanſhip, yet we ſhall mention ſome of them, becauſe they are examples of Magnificence.

[b] In the time of the Conſulate of *Mutianus*, there were reckon'd at *Rhodes* 300 famous Statues, and as many at *Athens*. [c] The *Coloſſus* of the Sun at *Rhodes*, which *Chares Lindius* made, was 70 Cubits high, which, reckoning according to the *Greek* Meaſure, is 105 $\frac{12}{25}$ *Engliſh* Feet, and was made in twelve Years for 300 *Talents*, that is, 58125*l.*

[d] There were a hundred other leſſer *Coloſſi* in the ſame City.

[e] There was a *Coloſſian* Statue at *Tarentum* made by *Lyſippus*, who was *Chares*'s maſter, of 40 Cubits high, or about 60 $\frac{12}{20}$ Feet.

[f] The Statue of *Apollo* in the Capitol, brought from *Pontus* by *Lucullus*, was 45 $\frac{1}{2}$ Feet high, it coſt 150 *Talents*, 29062*l.* 10*s.*

[g] The

Plin. l. 35. cap. 10. Hanc (Necromantiam Homeri) vendere noluit Attalo Regi Talentis ſexaginta. [a] Plin. lib. 35. cap. 7 & 8. [b] Plin. ibid. [c] Plin. ibid. Solus Coloſſus Rhodi quam fecerat Chares Lyndius, Lyſippi diſcipulus, ſeptuaginta Cubitorum altitudinis fuit: duodecim annis tradunt effectum CCC Talentis. [d] Plin. ibid. ſunt alii minores in eadem urbe Coloſſi centum. [e] Plin. ibid. Talis & Tarenti factus a Lyſippo XL cubitorum. [f] Plin. ibid. XXX cubitorum CL talentis factus.

[g]The *Mercury* of *Zenodorus*, ſet up in the City of *Auvergne*, which *Pliny* ſaith exceeded all Statues in bigneſs in his time, and was ten years in making, coſt the Workmanſhip only 400 *Seſtertia*, 3229*l.* 3*s.* 4*d.*

[h]There was collected for a Statue of an ordinary Size, 1259*l.* 3*s.* 4*d.* which *Cicero* reckons too high a price, as appears by a paſſage of his *contra Verrem.* There are very low prices of other Statues mentioned in the ſame Orations,

[i]As, ſome Statues of *Praxiteles*, *Myro* and *Polycletes*, for 52*l.* 9*s.* 2½*d.*

[k]The *Cupid* of *Praxiteles* was purchaſed for 12*l.* 18*s.*

There are ſome pieces of workmanſhip mentioned in *Cicero's* action againſt *Verres*, but the prices charged by him were ſo extravagant, and what he paid was ſo little, that there is nothing to be inferred from them.

[l]For example, he was accuſed by *Cicero* for charging for a piece of Work 560000 *HS.* 4520*l.* 16*s.* 8*d.* which could have been done as well for 80000 *HS.* 645*l.* 16*s.* 8*d.*

[m]In this paſſage he affirms that three as large Pillars, as that which he ſet up, might have been placed with long carriage paid, for 40000 *HS.* 322*l.* 18*s.* 4*d.* which is a pretty high price, being above 100*l.* a Pillar.

[n]*Craſſus* paid for his 10 Pillars, 100000 *HS.* 807*l.* 5*s.* 10*d.*

[o]By ſuch methods it was no wonder that *Verres* grew rich, having plundered and extorted to the value of 40000000 *HS.* 322916*l.* 13*s.* 4*d.*

[p]And his Secretary, by his Maſter's connivance, to the value of 1300000 *HS.* 10494*l.* 15*s.* 10*d.*

[q]To

[g] Plin. ibid. verum omnem amplitudinem ſtatuarum ejus generis vicit ætate noſtrâ, Zenodorus, Mercurio facto in Civitate Arvernis, per annos decem, HS. CCCC. immani pretio. [h] Cicer. in 3. Verr. XXXIX Millia denarios. [i] Plinius. [k] Idem. [l] Cicero in Verrina prima. Addicitur id opus HS. DLXM. cum Tutores HS. LXXX millibus id opus ſe effecturum clamarent. [m] Cicer. ibid. In ædibus privatis longæ difficiliſque vecturæ columnæ ſingulæ ad impluviem LL-S. quadragenis millibus locatæ ſunt. [n] Val. Max. lib. 9. Decem columnas centum millibus nummum. [o] Cicero in Verr. HS. quadringenties contra leges abſtulit. [p] HS. tredecies Verris ſcriba permiſſu Domini ex pecunia publica abſtulit. Cicer. in frumentaria Verr.

[q] To return to the value of Statues. *Lucullus* bought the *Protoplaſma* or Model of *Venus genetrix*, for 60 *Seſtertia*, 484 *l.* 7 *s.* 6 *d.* This was made by *Arceſilaus*, who was in ſo great repute, [r] that a Model of Paſte, of a Cup that he was making for one *Octavius* a *Roman* Knight, was purchaſed for a *Talent*, 193 *l.* 15 *s.*

This naturally leads me to ſay ſomething of the price of the Workmanſhip of their Plate. [s] *C. Gracchus* bought ſilver *Dolphins* at 5000 *HS.* 40 *l.* 7 *s.* 3½ *d.* the Pound.

[t] *Craſſus* bought two ſilver Boats graved by *Mentor*, for 100 *Seſtertia*, 807 *l.* 5 *s.* 10 *d.* He owned that he was aſhamed to uſe them, they were ſo fine. And that he had ſeveral ſilver Veſſels, bought *per* Pound *Roman* at 6000 *HS.* 48 *l.* 8 *s.* 9 *d.*

[t] There was paid for two glaſs Cups, the ſame Sum.

Reckoning according to the Standard of our Coin, and the *Engliſh* Pound, the mere Workmanſhip of the Plate mention'd in the laſt Article, comes *per* Pound to 48 *l.* 19 *s.* 1 *d.*

The *Romans* were very coſtly in their *Murrhina* and *Trullæ* (their drinking Cups) [u] one that held 3 ½ Pints, coſt 80 *Seſtertia*, 645 *l.* 16 *s.* 8 *d.*

[x] A Lady not very rich, paid for one 150000 *Nummi*, 1210 *l.* 18 *s.* 9 *d.*

Manuſcript Books are another ſort of Manufacture, of which there muſt have been moſt undoubtedly ſome ſtated prices, for ſuch as were commonly current. The Prices which I find mentioned by the Ancients are for ſuch as were Manuſcripts in our Senſe, that is, not publiſhed, and valuable for the rarity of them. [a] *Pliny* ſaith that his Uncle told him he could have ſold his Commentaries,

[q] Plin. lib. 35. cap. 12. [r] Plin. lib. 35. cap. 12. Octavio Equiti Romano Cratera facere volenti, Exemplar a Gypſo factum talento. [s] Plin. lib. 33. 11. Delphines HS. quinis millibus in libras emptos C. Gracchus habuit. L. vero Craſſus Orator duos ſcyphos Mentoris Artificis manu cælatos ſeſtertiis centum. Confeſſus tamen eſt nunquam ſe iis uti propter verecundiam auſum. Eundem ſex millibus ſeſtertium in libras vaſa empta habuiſſe. [t] Plin. lib. 36. ſex millibus HS. duo vitrei calices. [u] Plin. lib. 37. cap. 2. LXXX ſeſtertiis Calix murrhinus ad tres ſextarios capax. [x] Plin. ibid. HS. CLM. Trullam unam emit mater familias non Dives. [a] Plin. Epiſt. ad Marcum. Referebat ipſe cum procuraret in Hiſpaniâ, vendere hos commentarios potuiſſe CCCC millibus nummum. (In eadem Epiſtola CLX) mihi reliquit opiſtographos quidem & minutiſſime ſcriptos.

× Plin. Ep. ad Marcum l. 3. Ep. 5. Longwith.

mentaries, being 160 in number, to *Largius Licinus* for 400000 *Nummi*, 3229 *l.* 3 *s.* 4 *d.* He tells you in the same Epistle, that they were wrote on both sides, and in a small hand.

This is a greater Sum than [b] *Aristotle* paid for a few books of *Leusippus* the Philosopher, *viz.* 3 *Attick* Talents, which *Gellius* saith make 72000 *Nummi* of *Roman* Money; both ways of reckoning according to the Tables, bring it to 581 *l.* 5 *s.* which is a proof of the right analogy and correctness of the Tables.

[c] *Diogenes Laertius*, in the life of *Plato*, saith that a few Books of *Philolaus* were purchased for 100 *Minæ*, which *Gellius* interprets 10000 *Denarii*, both ways of reckoning bring it to 322 *l.* 18 *s.* 4 *d.*

[d] The prices of the magical Books mention'd to be burnt in the Acts of the *Apostles*, is 5 *Myriads* of Pieces of Silver, or *Drachms*, that is 1614 *l.* 11 *s.* 8 *d.*

It is a proper occasion here to mention the rewards of Arts and Sciences. [e] The customary Salary which Princes gave to their Physicians was 250 *Sestertia*, 2018 *l.* 4 *s.* 7 *d.*

[f] *Stertinius* complained that he had only a Salary of 500 *Sestertia*, 4036 *l.* 9 *s.* 2 *d.* when he had by his private practice 600 *Sestertia*, 4843 *l.* 15 *s.*

This he made out by reckoning the Houses that paid him; which shews that the Physicians had yearly pensions from private Families.

[g] One *Vectius Valens*, who seems to have been little better than a Student in Physick and Astrology, but familiar with *Messalina*, left *Centies HS.* 80729 *l.* 3 *s.* 4 *d.* for publick Buildings in his own Country; having spent as much more in the same manner.

[b] Gellius lib. 3. Aristotelem quoque traditum est libros paucos Leusippi Philosophi post mortem ejus emisse talentis Atticis tribus. Ea summa fit nummi nostri duo & septuaginta millia. [c] Diog. Laert. in vita Platonis. [d] Apost. Act. [illegible] Anglicè *Fifty Thousand pieces of Silver.* [e] Plin. lib. 29. cap. 1. Multos præterea Medicos celeberrimosque ex iis Cassios, Calpitanos, Aruntios, Albatios, Rubrios; CCL. HS Annua mercede iis fuere apud Principes. [f] Plin. ibid. Stertinius imputavit Principibus quod HS. quingenis annuis contentus esset: sexcena enim sibi quæstu urbis fuisse, numerati domibus ostendebat. [g] Plin. ibid. Centies HS. reliquit muris patriæ, mœnibus quoque aliis, non minori summa exstructis.

[h]A Brother of *Stertinius*, after having ſpent a great Eſtate on publick Works, left (as *Budæus* has reſtored *Pliny*) *Seſtertium tricenties*, 242187*l.* 10*s.*

[i]We have an inſtance of the Fees of one country Gentleman to a Phyſician, amounting to above 1600*l.*

[k]The rewards of Orators, conſidered as ſuch, were greater among the *Greeks* than the *Romans*. *Iſocrates* was paid by *Nicocles* King of *Cyprus* for one Oration, 20 *Talents*, 3875*l.* But ſome are of opinion that here ſhould be underſtood the ſmall Talents mentioned by *Plautus*. *Gorgias Leontinus* muſt have been well paid for his Oratory, or elſe he would not have been able to reward himſelf ſo munificently as he did, by ſetting up his own Statue of Gold in the Temple of *Delphos*, the firſt of that kind.

The *Roman* Orators had more conſiderable cauſes to plead than the *Grecian*, *viz.* the cauſes of great Monarchs and States, and conſequently their Clients were more able to pay them. But in thoſe times they were not to be conſidered as pleading Advocates; when they came to be ſuch, their [l]Fees were fixt at 100 *Aurei* in one cauſe, being at that time worth 80*l.* 14*s.* 7*d.*

[m]The ſame ſeems to have been the fixt Fee in *Clodius*'s Time.

[n]The Sum that was paid for *Cicero*'s Head, may juſtly come into the account of Eloquence, being ten times more than that of any other proſcribed Perſon, *viz.* 25 *Myriads* of *Drachms*, 8072*l.* 18*s.* 4*d.*

[o]*Veſpaſian*, who was a penurious Prince, gave yearly Penſions to *Greek* and *Latin* Orators, 100 *Seſtertia*, 807*l.* 5*s.* 10*d.* [p]which was double of that given to decayed Senators, being only 403*l.* 12*s.* 11*d.* A Generoſity much exceeded in our own Nation.

We have in another place taken notice of *Virgil*'s Eſtate, amounting to 80729*l.* 3*s.* 4*d.* [q]He was rewarded for the 21 Lines

h Plin. ibid. Seſtertium trecenties. i Plin. ibid. k Plutarchus in vitis Rhetorum. l Ulpianus de honorario advocatorum. Licita autem quantitas intelligitur pro ſingulis cauſis uſque ad centum aureos. m Tacit. lib. 11. De tempore Claudii. Statuit modum uſque ad dena ſeſtertia. n Appianus lib. 4. Civ. Bell. τετ]ς ϗ ἑκατὸ μυριάσιν Ἀττικῶν δραχμῶν. o Tacit. in Veſpaſiano, Annua centena. p Sueton. in Nerone. Tacit. in eodem. q Servius Gram.

Lines that are extant on *Marcellus* in his 6th *Æneid*, ten *Seſtertia* a Line, that is 80*l.* 14*s.* 7*d.* The whole Sum amounted to 1695*l.* 6*s.* 3*d.*

One might ſay ſomething here of the value of Offices in *Rome*, but it would be an inquiry inconſiſtent with the brevity I propoſe in the preſent Eſſay. [r] I ſhall only obſerve that the ancient frugal appointments for Governours of Provinces was 20 Pound of Silver, two Horſes, two Mules, two Robes, a Suit of wearing Cloaths, of bathing Cloaths one Suit, 100 *Aurei*, a Cook, and ſome other things mentioned in the quotation. All which could not amount to a very great Sum: and beſides they were obliged to reſtore the Mules, the Horſes, the Muletier, and the Cook; and allowed to keep the reſt only if they behaved themſelves well.

Things were much changed when [s] *Piſo*, as *Cicero* alledgeth, having by the intereſt of *Clodius* obtained *Macedonia*, had allowed him only for Plate and other Veſſels *centies & octogies Seſtertium*, 14531 2*l.* 10*s.*

[t] *Pompey*, when his Governments were continued to him for four Years, had a yearly Salary allowed him of 1000 *Talents*, 193750*l.*

[u] *Claudius* payed for admittance into a Prieſthood, not the high Prieſthood, 64583*l.* 6*s.* 8*d.*

r Cicero quinta contra Verr. Lampr. in Alexandro. Ita ut præſides provinciarum acciperent argenti pondo vicena, Mulos & Equos binos, veſtes forenſes binas, domeſticas ſingulas, balneares ſingulas, aureos centenos, coquos ſingulos, & ſi uxores non haberent, ſingulas concubinas, quod ſine iis eſſe non poſſent, reddituri depoſita adminiſtratione mulos, mulas, Equos, Muliones & Coquos, cætera ſibi habituri, ſi bene ſe geſſerint. s Cicero contra Piſonem. Centies & octogies Seſtertium vaſarii nomine decretum ſit. t Plutar. in Pompeio. u Sueton. in Claudio. ſeſtertium octogies pro Sacerdotii novi introitu coactus expendere.

CHAP. XIII.

Of Plate and Jewels.

IN early times of the Empire, the Laws did not allow any conſiderable quantity of wrought Plate. [a]A triumphal old *Roman* was cenſured for having five pound weight of Plate; [b]another perſon was baniſhed for twelve pound. The *Carthaginian* [c]Ambaſſadors, by way of Jeſt, ſaid that the *Romans* were the moſt neighbourly people in the world, for they eat in every place where they were invited out of the ſame plate; and they were afterwards paid home for their Joke: for [d]*Scipio Africanus* brought of theirs to *Rome* in ſilver Veſſels to the value in *Engliſh* money of 11966*l.* 15*s.* 9*d.* which was all he could find in *Carthage* at that time; a quantity exceeded afterwards by the Side-boards of many private Tables.

[c]In another place the ſame Author ſaith, *L. Scipio* brought in
A. U. 565. to the value of 3934*l.* 2*s.* 10*d.* and in Gold Veſſels to the value of 64712*l.* 5*s.* 8*d.*

[f]After all this, *Scipio Africanus* left only to his Heir 32 *Libræ Argenti*, 87*l.* 8*s.* 7*d.*

[g]They were better furniſhed with Plate 57 Years after, as *Pliny* obſerves, having thrown off their wonted modeſty. After King *Attalus*'s death, they began to bid high at the Auction of the Royal Goods.

[h] Before

[a] Plin. lib. 33. cap. 11. Propter quinque pondo notatum a Cenſoribus triumphalem cœnam. [b] Plin. ibid. Quod XII. pondo argenti habuiſſet. [c] Plin. ibid. Eodem enim argento apud omnes cœnitaſſe ipſos. [d] Plin. ibid. Idemque cum de Pœnis triumpharet, quatuor millia CCCLXXX pondo tranſtulit, hoc argenti tota Carthago habuit illa Terrarum æmula, quot menſarum poſtea apparatu victa. [e] Plin. ib. Argenti cælati pondo MCCCL vaſorum aureorum pondo MD. [f] Plin. ibid. Libras XXXII argenti Africanus ſequens hæredi reliquit. [g] Plin. ib. Tum enim hæc emendi Romæ in auctionibus regis verecundia exempta eſt.

[h] Before the *Syllan* civil War, there were at *Rome* 500 Diſhes of 100 Pound weight a-piece, value of each being in *Engliſh* money, 273 *l.* 4*s.* 3 *d.* beſides the workmanſhip. The whole amounting to 136607 *l.* 2*s.* 10*d.* Thoſe ſilver Veſſels were ſometimes the occaſion of proſcriptions to their owners. Likewiſe before *Sylla*'s victory there were but two ſilver *Triclinia* at *Rome*.

[i] *C. Marius* it ſeems was the firſt who drank out of a Silver Tankard, after the manner of *Bacchus*. In the latter ages of the Empire, they came to be extreamly nice in the faſhion of their Plate.

[k] *Druſilianus Rotundus*, Slave of the Emperor *Claudius*, and *Commiſſary* in the hithermoſt *Spain*, is recorded for having one Veſſel of 500 *Roman* Pound weight, which beſides the Workmanſhip comes to 1366 *l.* 1*s.* 5*d.* And his eight Companions of 50 Pound a-piece, worth 1092 *l.* 17*s.* 1*d.*

There are Ciſterns in *England* of more Weight than the greateſt of theſe.

All theſe things were but moderate, and only extravagant in reſpect of the times in which they were done. [l] For afterwards they had not only their Kitchen Veſſels, but Coaches and Carriages of Silver. [m] *Heliogabalus* had them of Gold and precious Stones. [n] *Julius Cæſar* lay in a gold Bed with a purple Covering. [o] They had Tables of Gold and precious Stones. I have mentioned before their extravagance in drinking Cups.

Petronius broke one worth above 3415 *l.* on purpoſe to diſappoint *Nero*.

[p] They had Candleſticks worth the Salary of a *Tribunus Militum*, which was 50 *Seſtertia*, or 403 *l.* 12*s.* 11*d.*

They

[h] Plin. ib. Lances e centenis libris argenti tunc ſupra quingentas numero Romæ fuiſſe conſtat multoſque ob eas proſcriptos, dolo concupiſcentium. [i] Plin. ib. C. Marius poſt victoriam Cimbricam cantharis potare Liberi patris exemplo traditur. [k] Plin. ibid. C. Claudii principatu ſervus ejus Druſillanus nomine Rotundus, Diſpenſator Hiſpaniæ citerioris, quingenarem lancem habuit, cui fabricandæ officina prius exædificata. Comites ejus octo quinquaginta librarum. [l] Plin. lib. 33. cap. 3. [m] Lampridius in Heliogabalo. [n] Sueton. in Julio. In aureo lecto veſte purpureâ decubuiſſe. [o] Ulpian. in libro cum aurum. In Coronis menſarum gemmæ coronis cedunt hæ menſis. Martial. lib. 3. Epi. 31. [p] Plin. lib. 34. cap. 3.

They had golden Shoes to their Horſes and Mules, [q] particularly *Poppæa*, *Nero*'s Wife; who to preſerve the fine Poliſh of her Skin, uſed conſtantly a Bath of Aſs's milk. ‡ They had golden Cloſe-ſtools. [r] And yet there is a Story of a Prince *Ptolomy* that lived in *Pompey*'s time, who out-did all this magnificence. He treated 1000 Gueſts with a 1000 Gold Cups, and changed them as often as the Diſhes.

The *Romans* were no leſs expenſive in Jewels than in Plate. It has been commonly thought that Diamonds, tho' firſt in value and eſteem, were not uſed in Ornaments; [s] altho' there is a plain paſſage in *Martial* to the contrary. The way of cutting of Diamonds even contrary to the grain is amongſt us a modern invention, but to cut them with the grain was known before. So far it is true that they were not ſo much uſed as Pearls, in which the *Romans* were exceeding prodigal. They wore them all poſſible ways, [t] and ſo many that they called them *Crotalia*, from the noiſe and crackling of them. In ſhort they were adorned with them from Top to Toe, their Stockings, their Shoes, and travelling Bed-Rooms, *&c.*

We have already mentioned *Lollia Paulina*, who by her Uncle's rapacity in his Government, was enabled to wear in her common dreſs Jewels to the value of 322916 *l.* 13 *s.* 4 *d.*

[u] *Julius Cæſar* preſented *Servilia*, *Brutus*'s Mother, with a Pearl worth 48437 *l.* 10 *s.*

[x] *Cleopatra* reproaching *Antony* for the meanneſs of his Suppers, at which he being ſurprized, ſhe laid a Wager ſhe would give him one

q Plin. lib. 33. cap. 11. Poppæa conjunx Neronis principis delicatioribus jumentis ſuis ſoleas ex auro quoque induere.

‡ Ventris onus miſero non te pudet accipis auro. Mart.

r Plin. ibid.

s Sardonychas, Smaragdos, Adamantas, aſſpidas, uno verſat in articulo—— Mart. lib. 5. Ep. 11.

t Plin. lib. 9. cap. 35. Crotalia appellant, ceu ſono quoque gaudeant, & colliſu ipſo Margaritarum.

u Suet. in Cæſare. Ante alias dilexit M. Bruti matrem Serviliam, cui & proximo ſuo conſulatu, ſexagies Seſtertio margaritam mercatus eſt.

x Plin. lib. 9. cap. 35. Duo fuere maximi uniones per omne ævum: utrumque poſſedit Cleopatra, Ægypti Reginarum noviſſima, per manus Orientis Regum ſibi traditos. Hæc, cum exquiſitis quotidie Antonius ſaginaretur epulis, ſuperbo ſimul ac procaci faſtu, ut regina meretrix, lautitiam ejus omnem apparatumque obtrectans, quærente eo quid adſtrui magnificentiæ poſſet, reſpondit, unâ ſe cœna centies H-S. abſumpturam. Cupiebat diſcere

one Supper worth 80729 *l.* 3 *s.* 4 *d.* And after the firſt courſe, in which there was nothing extraordinary, ſhe took one of her Pearls out of her Ears, diſſolved it in Vinegar, and drank to him: ſhe was preparing ſuch another for him to pledge her, but was ſtopt by *L. Plancus*, who own'd ſhe had won her wager. It would ſeem by this Story that both the Pearls were only worth *Centies H-S.* the Sum abovementioned, which would make them of leſs value than *Julius Cæſar*'s Pearl; if indeed one of them were worth the Sum abovementioned, then *Cleopatra*'s Pearl was the more valuable. What this Lady did, was highly gallant, but the manner of uſing the remaining Pearl was directly barbarous, for they divided it in two, and made a pair of Earings of it for the *Venus* in the *Pantheon*.

Pearls increaſed in value as they increaſed in weight, and excelled in fine Colour. [y] *Pliny* ſaith that a few had exceeded a *Roman* half Ounce, by one Scruple, that is in *Engliſh* weight $\frac{1}{2}$ of an Ounce and $3\frac{1}{2}$ Grains.

Budæus ſaith he had ſeen one that weighed $\frac{1}{4}$ of a *French* Ounce. Precious Stones at *Rome*, as to their value, ſtood in the following order. [z] Firſt, the Diamond, whereof *Pliny* mentions one of the biggneſs of a Walnut, next the Pearl, then the Emerald, after them came at a great diſtance the Opall, * of which *Nonius* had a ring worth 161 *l.* 9 *s.* 2 *d.* the only thing he reſerved of all his Fortune when he was proſcribed. There are ſome Sizes of Emeralds which

diſcere Antonius, ſed fieri poſſe non arbitrabatur. Ergo ſponſionibus factis, poſtero die quo judicium agebatur, magnificam alias cœnam, ne dies periret, ſed quotidianam Antonio appoſuit, irridenti, computationemque expoſtulanti. At illa Corollarium id eſſe, & conſumpturam eam cœnam taxationem confirmans, ſolamque ſe centies H-S. cœnaturam, inferri menſam ſecundam juſſit. Ex præcepto miniſtri unum tantum vas ante eam poſuere aceti, cujus aſperitas viſque in tabem margaritas reſolvit. Gerebat auribus cum maxime ſingulare illud, & vere unicum naturæ opus. Itaque expectante Antonio quidnam eſſet actura, detractum alterum merſit, ac liquefactum abſorbuit. Injecit alteri manum L. Plancus, judex ſponſionis ejus, eum quoque paranti ſimili modo abſumere, victumque Antonium pronunciavit, omine raro. Comitatur fama unionis ejus parem, capta illa tantæ quæſtionis victrice Regina diſſectum, ut eſſet in utriſque Veneris auribus Romæ in Pantheo dimidia eorum cœna. [y] Plin. lib. 9. cap. 35. Pondus ad hoc ævi ſemiunciæ pauci ſingulis ſcrupulis exceſſere. Plin. lib. 37. cap. 4. Maximum in rebus humanis pretium habet Adamas, proximum apud nos Indicis, Arabiciſque Margaritis pretium eſt, c. 5. tertia autoritas ſmaragdis perhibetur. cap. 6. Minimum iidemque plurimum ab iis differunt Opali. * Plin. 37. cap. 7. Ex fortunis ſuis omnibus, annulum abſtulit ſecum quem certum eſt ſeſtertiis viginti millibus æſtimatum.

which the Author himſelf thinks incredible, particularly that mentioned by [a] *Theophraſtus*, ſent by the King of *Babylon* to the King of *Egypt*, of four Cubits length, and three in breadth. [b] The Obelisk in the Temple of *Jupiter* 40 Cubits high, made of four Emeralds; which could not be genuine.

[c] For the Toy that was brought to *Rome* in the third Triumph of *Pompey*, the publick Records are quoted: It was a ſort of a pair of Tables for gaming, made of two precious Stones, 3 foot broad, and 4 foot long, which with other things there deſcribed would have made a fine Raffle. I likewiſe leave to the faith of the Reader the dimenſions of thoſe Carbuncles, [d] which the *Indians* will ſcoop ſo as to hold above a Pint.

[e] *Pliny* himſelf ſaw a Jaſper of eleven Ounces, which was cut into *Nero*'s Figure. [f] *Cicero* mentions a Cup made of a hollow Gemm with a golden Handle.

[g] There was a particular *Cenſus* for the wearing gold Rings, *viz.* he muſt be a Gentleman deſcended of a Father or Grandfather worth 3229*l.* 3*s.* 4*d.*

[h] They made veſſels of Gemms to hold their Ice for their Wine.

[a] Cap. 5. Theophraſtus tradit in Ægyptiorum commentariis reperiri, regi eorum a rege Babyloniorum miſſum ſmaragdum quatuor cubitorum longitudine, trium latitudine. [b] Plin. ibid. [c] Plin. ibid. cap. 2. Tranſtulit alveum cum teſſeris Luſorium e gemmis duobus latum pedes tres, longum pedes quatuor. [d] Cap. 7. [e] Plin. ibid. [f] Cicero 6. Verrina. [g] Plin. lib. 33. cap. 2. Ne cui jus id eſſet, niſi cui ingenuo ipſi patri avoque paterno ſeſtertio CCCC. cenſus fuiſſet. [h] Pacat. in Panegyr. Parum ſe laudatos putabant, niſi æſtivam in gemmis capacibus glaciem falerna fregiſſent.

CHAP. XIV.

Of Gaming and Funeral Expences.

ANother piece of Expences is Gaming. The *Romans* are censured by the Poets for that vice. [a] *Augustus* himself was very fond of it, and continued so even in his old age. There is a passage of an Epistle of his to *Tiberius*, recorded by *Suetonius*, [b] which I have set down in the quotations: the substance of it, as far as it relates to our present purpose, is, that he played at a game of Chance two Days successively, and lost 20000 *Nummi*, which is 161 *l.* 9 *s.* 2 *d.* that if he had not been too generous in giving away Sums, and forgiving Debts, he had been a gainer of 50000 *Nummi*, or 403 *l.* 12 *l.* 11 *d.* Now the Game was so contrived that one particular cast took up the whole Stake, when some others came up you laid down. *Augustus* and his Play-fellows at this Play only staked *Denarii*, or 7¾ *d.* and at such low stakes you see one might come off a gainer of 403 *l.* 12 *s.* 11 *d.* It is suppos'd, [b] that this was the Play at which *Nero* staked instead of *Denarii*, 3229 *l.* 3 *s.* 4 *d.* upon every cast. Where did he find Play-fellows?

[a] Sueton. in Augusto. Inter cœnam lusimus γροντικῶς & heri & hodie. Talis enim jactatis, ut quisque canem, aut senionem miserat, in singulos talos singulos denarios in medium conferebat: quos tollebat universos qui venerem jecerat. Et rursus aliis literis, Nos, mi Tiberi, Quinquatriis satis jucunde egimus. Lusimus enim per omnes dies, forumque aleatorium calefecimus. Frater tuus magnis clamoribus rem gessit. Ad summum tamen perdidit non multum: sed ex magnis detrimentis, præter spem paullatim retractus est. Ego perdidi viginti millia nummûm, meo nomine: sed cum effuse in lusu liberalis fuissem, ut soleo plerumque. Nam si quas manus remisi cuique, exegissem, aut retinuissem quod cuique donavi, vicissem vel quinquaginta millia. Scribit ad filiam; Misi tibi denarios ducentos quinquaginta, quos singulis convivis dederam, si vellent inter se inter cœnam vel talis, vel par impar ludere. Augustus *must have been a lover of Game, when he sent* 8 *l.* 1 *s.* 5½ *d. to his Guests to play at even and odd.* [b] Sueton. in Nerone. Quadringenis in punctum H-S. aleam lusit.

So much of the Expences of the Living: the Expences of the Dead were ſtill more extravagant.

[c] *Memmius Agrippa* was buried by a Contribution of about half farthings a-piece among the People, I think there were 100000 contributers, and the whole Summ exactly calculated comes to 53 *l.* 16 *s.* 4½ *d.* which is a pretty great Sum, and ſhews a diſpoſition to Extravagance in thoſe times, as to Funeral Expences.

[d] On *Sylla*'s Funeral Pile were caſt 210 *feretra*, or biers of Spices, which conſidering the dearneſs of that Commodity at *Rome*, muſt have amounted to a vaſt Sum: beſides his own, and his *Lictor*'s Statue, made of Incenſe and Cinnamon, as big as the Life.

[e] *Nero* in *Poppæa*'s Funeral burnt more *Cinnamon* and *Caſſia*, than the whole yearly Product of *Arabia*.

It were endleſs to relate the immenſe Funeral Piles, the coſtly Garments, Gold, Silver and Gemms that were conſumed on theſe occaſions, the expenſive Feaſts to the people, the funeral Plays or Diverſions, particularly thoſe of the Gladiators, their ſtately Sepulchres; a hundred pair of Gladiators were very frequent.

[f] *Julius Cæſar*, in his Father's Funeral, had all the *Apparatus* of the *Arena* of Silver.

[g] One *Curio* at the Funeral of his Father built a temporary Theatre, in imitation of that of *M. Scaurus* before deſcribed. It conſiſted of two parts balanced and turning on hinges, according to the poſition of the Sun for the conveniency of Forenoon's and Afternoon's diverſion. It was a moſt extravagant thing.

[h] The Expences of *Nero*'s Funeral were not great, being only 1614 *l.* 11 *s.* 8 *d.*

[i] *Q. Minutius Anteros*, a *libertus*, left by will a yearly revenue of 80 *l.* 14 *s.* 7 *d.* to celebrate his Memory.

CHAP.

[c] Val. Max. de Memmio Agrippa. Niſi a populo collatis in capita ſextantibus, ita pecuniæ inops deceſſit, ut ſepulturæ honore caruiſſet. [d] Plut. in Syllâ. [e] Nero in funere Poppææ plus cinnamomi & caſſiæ combuſſit, quam toto anno Arabia univerſa ferret. [f] Plin. lib. 33. cap. 3. [g] Plin. lib. 36. cap. 15. [h] Suetonius in Nerone. funeratus eſt impenſo ducentorum millium. [i] Vetus inſcriptio. Decem millia ſeſtertiûm quotannis.

CHAP. XV.

Of Soldier's Pay.

THERE are a great many Diſputes amongſt the Learned about the Rate of pay of *Roman* Soldiers. I take that matter to have ſtood thus. In the early times of the Commonwealth, a Horſeman receiv'd yearly *Tria millia Æris*, and a foot Soldier one *Mille*, that is, reckoning according to the common value of the *As*, ſomewhat more than 6 pence a-day to a Horſeman, and 2 pence to a foot Soldier. This Pay was afterwards increas'd to *Quini*, or five *Aſſes* to a foot Soldier. *Polybius* calls it δύο ὀβολὰς, which exceeds five *Aſſes* by a *Triens*, or a third part of an *As*. But he is to be underſtood as ſpeaking in a round number. This, conſidering the Diminution of the Braſs Coin, was really leſs in value, or weight; but more in tale. *Julius Cæſar* doubled this pay of 5 *Aſſes*, and made it ten, which was called a *Denarius*. Afterwards *Domitian* (according to *Suetonius*, in *Domitiano Cap.* 7.) *addidit & quartum Stipendium Militi Aureos Ternos*, that is, *Domitian* added three *Aurei* as a fourth reckoning or pay to the Soldiers. About the interpretation of which paſſage there are great Diſputes among the Criticks. In order to come at the true ſenſe of it, *Gronovius* has compar'd it with another paſſage to the ſame purpoſe in *Zonaras*, which runs thus, τοῖς στρατιώταις ἐπηύξησε τὴν μισθοφορὰν, τάχα διὰ τὴν νίκην· πέντε γὰρ καὶ ἑβδομήκοντα δραχμὰς ἑκάστῳ λαμβάνοντας, ἑκατὸν ἐκέλευσε δίδοσθαι. The ſenſe of which paſſage is, that he order'd for the Soldiers 100 *Denarii*, inſtead of 75, which they receiv'd before. The moſt plain account of the whole matter then is, that the Soldiers receiving 10 *Aſſes* a-day, made 300 *Aſſes* in a Month of 30 Days; conſequently

conſequently in 4 Months, 1200 *Aſſes*: about the time of the diminution of the Braſs Coin, when perhaps the Soldier's pay was likewiſe chang'd, as *Pliny* tells us (in a paſſage formerly quoted) the *Denarius* was exchang'd for 16 *Aſſes*; and it's probable that they were continued to be reckon'd to the Soldiers on that foot, conſequently 1200 *Aſſes*, or four Month's pay, made 75 *Drachmæ* or *Denarii*: And the *Aureus* exchanging for 25 *Denarii*, four Months pay came exactly to 3 *Aurei* at one payment. *Domitian* increaſing this 75 *Denarii* to 100, added one *Aureus* more to each payment, or 3 *Aurei* in a Year, which was properly ſpeaking *quartum ſtipendium*; the Soldiers inſtead of 9 *Aurei* receiving now 12. Therefore tho' the daily Pay of a *Denarius* according to the analogy of the Tables ought to be reckon'd at 7½*d.* a-day; it was really, according to the above-ſtated account, under the value of 5 pence before *Domitian*, and about 6 pence after this additional pay.

The *Cohortes Prætoriæ & Urbanæ*, which one may tranſlate *Guards*, had double Pay, or 2 *Denarii* a-day aſſigned them by *Auguſtus*. Thoſe Troops who were commonly the moſt vitious, and not moſt valiant, by their Poſt had greater Influence on the Affairs of the Government, and even in diſpoſing of the very Empire it ſelf, than the other Troops, and therefore were more conſider'd, not only in the Pay, but the Donatives.

If we take the price of Day-labour from the pay of Soldiers, it will not make it at a much higher rate in *Rome* than in our own Countrey. I cannot tell by what chance, but the moſt honourable Profeſſion of a Foot Soldier has always been reckon'd as one of the loweſt kinds of Day labour, and it has coſt Mankind leſs to kill their own *Species*, than any other ſort of *Animal*.

CHAP. XVI.

Of the Donatives given to the Soldiers.

[a] THE reward for the third *ſpolia opima*, was 100 *Aſſes*, or 6 *s.* 5 ½ *d.* for the ſecond 200 *Aſſes*, or 12 *s.* 11 *d.* and the Reward for the firſt *Spolia opima* was 300 *Aſſes*, or 19 *s.* 4 ½ *d.* *Spolia opima* were Spoils taken from the commanding Officer of the Enemy. Theſe ſmall Rewards ſhew the ſcarcity of Money in the early days of *Rome*: for I think this Reward was ordered by *Numa Pompilius*.

[b] *Lucius Lentulus* gave to each of his Soldiers, out of the Booty, 120 *Aſſes*, 7 *s.* 9 *d.*

[c] *Cornelius* gave to each Foot Soldier, 70 *Aſſes*, 4 *s.* 6 ½ *d.* double to that of the *Equites*, 9 *s.* 1 *d.* and triple to the *Centurions*, 13 *s.* 7 ½ *d.*

[d] Eight hundred *Aſſes* were given to each Foot Soldier, or 2 *l.* 11 *s.* 8 *d.* and to the *Equites* and *Centurions* triple that Sum, 7 *l.* 15 *s.*

[e] Two hundred and fifty *Aſſes* were given to each Foot Soldier, 16 *s.* 1 ½ *d.* double to the Centurions, 1 *l.* 12 *s.* 3 ½ *d.* and triple to the *Equites*, 2 *l.* 8 *s.* 5 ½ *d.*

[e] Two hundred and ſeventy *Aſſes* were given to each Foot Soldier, 17 *s.* 5 ½ *d.* and triple to the *Equites*, 2 *l.* 12 *s.* 3 ½ *d.*

[e] Four hundred thouſand *Æris* were diſtributed among the Soldiers, 1291 *l.* 13 *s.* 4 *d.*

[f] *Pub. Cornelius* gave to each of his Soldiers, 125 *Aſſes*, 8 *s.* 0 ½ *d.*

† Forty two *Denarii* were given to each Soldier, that is, 1 *l.* 7 *s.* 1 ½ *d.* and double that to the *Centurions*, 2 *l.* 14 *s.* 3 *d.*

[g] *Scipio*

[a] Plutarch. in Marcello. [b] Liv. lib. 1. ibid. [c] Liv. lib. 4. Dec. 4. [f] Liv. lib. Dec. 4. [e] Liv. lib. 3. Decad. 4. [d] Liv. 6. Dec. 4. † Liv. lib. 6. Dec. 4.

[g] *Scipio Africanus* gave to each of his Soldiers 40 *Aſſes*, 2 *s.* 7 *d.*

[g] The *Legati* received each of them 5000 *Æris*, 16 *l.* 2*s.* 11 *d.* and their *Comites*, 1000 *Æris*, 3 *l.* 4 *s.* 7 *d.*

[h] *Paulus Æmilius* gave in a Donative to his Soldiers 12 *Drachms per* man, that is 7 *s.* 1 ½ *d.*

[i] *Lucullus* gave to each of his Soldiers 950 *Drachms*, 30 *l.* 13 *s.* 6 ½ *d.* After the taking of *Tygranocertæ*, he gave to each 800 *Drachms*, 25 *l.* 16 *s.* 8 *d.* out of the Spoil taken from *Tigranes*'s Army, and beſides left the Town to be plundered by them, all except King *Tigranes*'s Treaſure, where among other riches he found in ready money 8000 Talents, 1.550000 *l.*

A. V. 693. [ii] *Pompey*, after he had overcome the Pyrates, *Aſia*, *Pontus*, &c. in his Triumph gave to the Publick and the Quæſtors, who had defended the Shore a thouſand *Talents*, or 193750 *l.* and unto each Soldier 6000 *HS.* 48 *l.* 8 *s.* 9 *d.*

By this time the Riches of the *Romans* began to encreaſe, and the Spoils of the conquer'd Countries could afford greater Sums to the Soldiers.

Julius Cæſar's *Donatives* were very great. [k] At one time to each Soldier of the *Veteran* Legions he gave 16 *l.* 2 *s.* 11 *d.* and to the *Equites*, 193 *l.* 15 *s.*

[l] *Dio* mentions another Donative of his amounting *per* man to 80 *l.* 14 *s.* 7 *d.*

[m] *Appianus* makes another Donative of his amount *per* man to 5000 *Attick Drachms*, or 161 *l.* 9 *s.* 2 *d.* Double to the Leader of a Company, or 322 *l.* 18 *s.* 4 *d.* To the *Tribuni Militum* and the *Equites* double of this laſt Sum, 645 *l.* 16 *s.* 8 *d.*

Plutarch

[g] Liv. lib. 10. Decad. 3. [h] Plut. in Paulo Æmilio. [i] Plut. in Lucullo. [ii] Plin. lib. 37. cap. 2. Reipublicæ & Quæſtoribus, qui oram maris defendiſſent datum mille talentum, militibus ſingulis ſena millia ſeſtertium. [k] Suet. in Cæſare cap. 38. Veteranis legionibus prædæ nomine in pedites ſingulos ſuper bina ſeſtertia, quæ initio civilis tumultus numeraverat, in equites vicena quaterna millia nummum dedit. [l] Dio. lib. 46. [m] Appian. lib 2. Bellor. Civil.

Plutarch takes notice of another Donative to *Cæſar*'s Soldiers for a Sacrifice, *per* man, 3 *s.* 2 ½ *d.*

[n] *Brutus* gave *per* man 1 *l.* 12 *s.* 1 ½ *d.*

I read little of *Antony*'s Donatives, [o] but only that he promiſed to each Soldier that would throw Papers into *Cæſar*'s Camp, 48 *l.* 8 *s.* 9 *d.* [p] He gave once to each Soldier of the Legions 1 *l.* 2 *s.* 7 ½ *d.*

[q] *Auguſtus Cæſar* gave to each Soldier of the *Pretorian* Bands, after he had ſerved 16 Years, 161 *l.* 9 *s.* 2 *d.* [r] He left to each Soldier of the *Urbanæ Cohortes*, 4 *l.* 0 *s.* 8 ½ *d.* To the *Prætorian* Soldiers, 8 *l.* 1 *s.* 5 ½ *d.*

The *Roman* Soldiers had ſometimes a great Booty, but it was moſt commonly regularly diſtributed to them; particularly at the taking *Alexandria*, they had *per* man 8 *l.* 1 *s.* 5 ½ *d.* to ſave the Town.

[s] *Caligula* gave to each Soldier 2 *l.* 8 *s.* 5 ½ *d.*

[t] *Suetonius* ſaith he gave them 100 *Denarii*, 3 *l.* 4 *s.* 7 *d.* as a Sum exceeding all that had been given before, and bid them go away and be merry and rich, whereas it's plain his Donative fell much ſhort of the Sums above-mentioned.

[x] *Claudius* gave to each Soldier at once the ſame Sum as *Caligula*, *viz.* 2 *l.* 8 *s.* 5 ½ *d.*

[y] *Claudius* promiſed when he was made Emperor, 121 *l.* 1 *s.* 10 ½ *d.* being the firſt of the *Cæſars*, as *Suetonius* obſerves, that run a-tick with the Soldiers.

[z] *Nero* promiſed the Soldiers 113 *l.* 0 *s.* 5 *d.*

[a] *Nero* gave to each of the *Manipulares* 2000 *H-S.* that is 16 *l.* 2 *s.* 11 *d.*

[b] He laid out on Donatives at ſeveral times 17.760416 *l.* 16 *s.* 4 *d.*

Galba

n Plut. in Bruto. o Dio lib. 51. p Dio lib 49. q Dio lib. 55. r Suet. in Aug. cap. 101. Legavit Pop. Romano quadringenties, tricies quinquies H-S. Prætorianis militibus ſingula millia nummorum, Cohortibus urbanis quingenos, Legionariis trecentos nummos, quam ſummam repræſentare juſſit, nam & confiſcatum ſemper repoſitumque habuerat.

s Dio lib. 59. t in Caligula. cap. 46. Pronunciatoque militi donativo centenis viritim denariis, quaſi omne exemplum liberalitatis ſupergreſſus, abite, inquit, læti, abite locupletes.

x Dio lib. 60. y Suet. in Claudio. cap. 10. Armatos pro concione jurare in nomen ſuum paſſus eſt, promiſitque ſingulis quina dena H-S. primus Cæſarum fidem militis etiam præmio pignoratus eſt. z Philip. Chronic. lib. a Tacit. lib. 15. b Tacit. lib. 17.

Galba was very close-handed; I have not read much of his Liberalities. But [c] *Otho* used to bribe his Guards at a very high rate; for as often as *Galba* supped with him, he used to give every Soldier upon duty an *Aureus*, 16 *s.* 1 ¼ *d.* *Plutarch* and *Suetonius* call it one *Aureus*. *Tacitus* calls it 100 *Sestertii*. The Emperor's Guard consisted of a thousand Men, so that the whole Sum came at every Supper to 807 *l.* 5 *s.* 10 *d.*

[d] *Otho* gave in the Beginning of his Reign a Donative of 40 *l.* 7 *s.* 3 ½ *d.*

[e] There is one Donative of *Vitellius* mentioned, of 16 *s.* 1 ¼ *d.*

[f] There was likewise a Donative of the Emperor *Marcus Antoninus* of 96 *l.* 17 *s.* 6 *d.*

[f] And the Emperor *Lucius* his Collegue gave 161 *l.* 9 *s.* 2 *d.*

[f] *Pertinax* promised 96 *l.* 17 *s.* 6 *d.*

[f] *Pertinax* himself affirms that he gave to the Soldiers 6750 *Myriads* of *Drachms*, that is 2,179687 *l.* 10 *s.*

[g] *Julian* promised to each Soldier, when he stood for the Empire, 201 *l.* 16 *s.* 5 ½ *d.*

Even the Deputy Kings of the *Romans* gave their Donatives to their Soldiers. [h] *Herod* at his Death left each of them 1 *l.* 12 *s.* 1 ½ *d.* [i] He had given in his Life-time at once 4 *l.* 16 *s.* 4 ½ *d.*

These are some Instances not only of the *Roman* Riches and Magnificence, but of the Respect which they knew was due to a standing Army, who had the Disposal both of them and their Empire.

c Suet. in Othone. Quoties cœna Principem acciperet, aureos excubanti cohorti viritim dividebat. Idem habetur apud Tacit. lib. 17.
d Plutarch. in Othone.
e Dio in Vitellio.
f Dio. in Pertinace.
g Dio. in Juliano.
h Joseph. lib. 17. cap. 9.
i Ibid. lib. 14. cap. 12.

CHAP.

CHAP. XVII.

Of the Congiaria *of the Emperors, or Gifts to the People.*

THE *Roman* Emperors were the only Monarchs that gave back their ſuperfluous Money to the People, which no doubt was good Policy, becauſe the Money was of more uſe when it circulated amongſt the People than lying in a dead Treaſure; eſpecially ſince they could command it back again, when they had occaſion for it. It was ſtill a greater Advantage to the People, becauſe it was not their own, but Money raiſed on other conquered Nations. A ſhort Account of ſome of theſe *Congiaria* is as follows.

[a] By *Julius Cæſar*, beſides ten *Modii* of Corn and ten Pound of Oyl, was given to each Citizen 400 *Nummi*, or 3 *l.* 4 *s.* 7 *d.*

[b] By the ſame, 75 *Drachms*, 2 *l.* 8 *s.* 5 ½ *d.*

Tho' I believe it is the ſame with the former Donative, only omitting the 100 *Nummi* that was mentioned in the former quotation by *Suetonius*. The ſame Sum is mentioned by *Plutarch*, and called 75 *Drachms*. [c] He bequeathed to the People *per* Man 75 *Drachms*, 2 *l.* 8. *s.* 5 ½ *d.* or as ſome ſay, only 25 *Drachms*, 16 *s.* 1 ½ *d.*

[d] *Auguſtus* gave frequent *Congiaria* to the People, ſometimes of 30 *Nummi*, or 4 *s.* 10 ½ *d.* ſometimes 40 *Nummi*, or 6 *s.* 5 ½ *d.*

[a] Suet. in Cæſar. cap. 38. Populo præter frumenti denos modios ac totidem olei libras, trecenos quoque nummos, quos pollicitus olim erat, viritim diviſit, & hoc amplius centenos pro mora. [b] Dio. lib. 44. [c] Ibid. [d] Suet. in Aug. cap. 41.

ſometimes 250, 2*l.* 2*s.* 1*d.* not omitting the very Children, tho' the common Cuſtom was not to give to any under the Age of eleven. *Euſebius* in his Chronicle writes, that after the Victory of *Actium*, there were reckoned of *Roman* Citizens 4.160000. And by the *Cenſus* that was made at the Nativity of our Saviour there were reckoned 93.700000. Suppoſe only that there were two Millions of theſe that received the forementioned Sum of 2*l.* 2*s.* 1*d.* it would amount to 4.036458*l.* 6*s.* 8*d.*

[e] *Auguſtus* left by his Teſtament to the common People, *per* Man, 2*l.* 8*s.* 5½*d.*

[f] The ſame Author mentions another *Congiarium* of his of 60 *Drachms*, or 1*l.* 18*s.* 9*d.* and the Number that did partake of this Liberality was only 200000, ſo that the whole amounted to 387500*l.*

[g] *Suetonius* ſaith that he left to the People of *Rome* 322916*l.* 13*s.* 4*d.* and to the Tribes 28255*l.* 4*s.* 2*d.*

[h] *Tiberius* gave a *Congiarium* of 300 *Nummi*, 2*l.* 8*s.* 5½*d.*

[i] *Tiberius* was noted for his niggardly Temper, he uſed only to give to his Attendants their Dyet, but once he was taken with a Fit of Generoſity, and divided them into three Claſſes according to their Dignity; to the firſt he gave 600 *Seſtertia*, 4843*l.* 15*s.* to the ſecond 400 *Seſtertia*, 3229*l.* 3*s.* 4*d.* to the third 200 *Seſtertia*, 1614*l.* 11*s.* 8*d.*

In ſuch a *Suit* as a *Roman* Emperor had, this would exhauſt a large Civil Liſt. [k] There is another Liberality of his mentioned, very judicious and generous; to the Citizens who had ſuffered Damage by a great Fire he gave *Millies H-S.* 807291*l.* 13*s.* 4*d.*

[l] *Caligula* gave a *Congiarium* of 60 *Drachms*, 1*l.* 18*s.* 9*d.*

He

[e] Dio. lib. 56. [f] Ibid. lib. 55.
[g] In Auguſto cap. 41. Legavit pop. Romano quadringenties, tribubus tricies quinquies. H-S.
[h] Suet. in Tiberio, cap. 20. [i] Ibid. cap. 46. Pecuniæ parcus ac tenax, comitas peregrinationum expeditionumque nunquam Salario, cibariis tantum ſuſtentavit: una modo liberalitate ex indulgentia vitrici proſecutus cum tribus claſſibus factis pro dignitate cujuſque, primæ ſexcenta ſeſtertia, ſecundæ quadringenta diſtribuit, ducenta tertiæ, quam non amicorum ſed gratorum appellabat. [k] Suet. ibid. Dio. lib. 58. [l] Dio. lib. 59.

He paid likewiſe a Legacy of *Tiberius* of 1125 *Myriads* of *Drachms*, 363281 *l.* 5 *s.*

[m] *Nero* gave a *Congiarium* of 400 *Nummi*, 3 *l.* 4 *s.* 7 *d.*

[n] The ſame is mentioned by *Tacitus*.

[o] *Nerva* gave at once in land to the value of 484375 *l.* to relieve poor Citizens.

[p] *Adrian* ſaid he had loſt 3.229166 *l.* 13 *s.* 4 *d.* which he had given to the People and Soldiery for the Adoption of *Commodus*, who proved unfit for the Empire. This ſhews you to what immenſe Sums the *Ambitus* or bribing for Offices had come to.

[q] *Antoninus Philoſophus* gave a very large *Congiarium* of no leſs than 8 *Aurei*, 6 *l.* 9 *s.* 2 *d.* which *Dio* ſaith was greater than ever they got before.

[r] His Son *Commodus* gave 725 *Denarii*, 23 *l.* 8 *s.* 2½ *d.*

[s] *Severus* gave a *Congiarium* of 10 *Aurei*, which came to 5000 *Myriads* of *Drachms*, 161458 3 *l.* 6 *s.* 8 *d.*

[t] The *Ambitus* or bribing for Offices was very expenſive. *Milo* when he ſtood for the Conſulate gave to each Voter 32 *l.* 8 *s.* 10 *d.*

[u] *Sabinus Nymphidius* promiſed to each Soldier of the provincial Legions 40 *l.* 7 *s.* 3½ *d.* that they might chuſe *Galba* Emperor.

[x] *Claudius* promiſed the Soldiers *per* Man 113 *l.* 0 *s.* 5 *d.* if they would make him Emperor.

[y] *Julian* promiſed to the Soldiers *per* Man 201 *l.* 16 *s.* 5½ *d.* to chuſe him Emperor.

[z] *Otho* promiſed 403 *l.* 12 *s.* 11 *d.* to thoſe that were to aſſaſſinate *Galba*, of which there was paid in ready Money 80 *l.* 14 *s.* 7 *d.*

However this was no extraordinary Price for the Life of an Emperor, nor is it an extraordinary Sum that is mention'd by

m Suet. in Nerone cap. 10. n Tacit. lib. 13. o Dio. in Nerva. p Spartian. in Adriano. q Dio. in Antonio. r Lampridius in Commodo. s Dio. in Severo. t Aſconius Pædianus. u Plutarch. in Galba. x Philippus lib. 3. Chronici. y Dio. z Suet. in Othone.

Saluſt, [a] given to two Spies in *Catiline*'s Conſpiracy, *viz.* to one 807 *l.* 5 *s.* 10 *d.* to another a Freeman 1614 *l.* 11 *s.* 8 *d.*

[b] *Otho* bribed one of *Galba*'s Servants with 8072 *l.* 18 *s.* 4 *d.*

Paulus the *Conſul* was bribed by *Cæſar* himſelf with a Sum of 56510 *l.* 8 *s.* 4 *d.*

[c] *Plutarch,* who mentions this, ſaith afterwards, that he was brought over to *Cæſar*'s Party by the Sum of 290625 *l.*

There are two conſiderable Bribes mention'd in Law-Suits, [d] one of 8072 *l.* 18 *s.* 4 *d.* which *Dio* was obliged to pay for common Juſtice. [e] Another of 5166 *l.* 13 *s.* 4 *d.*

[f] *Gabinius* was accuſed of taking a round Sum of 1.937500 *l.* ×

The [g] *Ambitus* came at laſt to 80729 *l* 3 *s.* 4 *d. per* Tribe, and there were 35 of them.

Capito Coſſulianus according to *Tacitus lib.* 12. for bringing in *Thraſeas Pætus* guilty, got a Reward of *quinquagies H-S.* 402081. 6 *s.* 8 *d.*

CHAP. XVIII.

Of the Revenues of the Roman *Empire.*

IT is much to be regretted that there is not in any Author a Computation left us of the Revenues of the *Roman* Empire, and hardly any Memoirs from whence it might be collected. Thoſe of the Moderns who have wrote upon the Subject, have rather made a Collection of ſome Paſſages of Authors obſcure, and ſometimes inconſiſtent, than given any methodical Account, from whence they may be reduced to Numbers. All that was poſſible for me to do in this Uncertainty, was to gather ſome matters

[a] Saluſt. [b] Suet. in Othone. [c] Plut. in Cæſare. [d] Cicero in 3. Verrina. [e] Cicero in Cluentio. [f] Cicero pro Rabirio Poſthumo. Epiſt. 2. ad Q. Fratrem. [g] Cic.

× Two Millions would have been a rounder, and perhaps nearer the truth. See Smith p. 229. Langwith

matters of Fact together, which I ſhall lay before my Readers, leaving thoſe of more Skill to make their Inferences from them. *Auguſtus* carried a *Rationarium* of the Empire in his Pocket. It was certainly a very great Curioſity, and a Loſs never to be retriev'd.

In conſidering the Riches of the *Roman* Government, one muſt in the firſt place look upon them originally as Proprietors of all the Land in their Dominions, which being acquir'd by Conqueſt, was diſpos'd by them according to their Pleaſure. We read of the *Vectigales Agri*, which were Lands taken from the Enemy divided into Centuries or Hundreds, and diſtributed amongſt the Soldiers, new Colonies, Cities, or left in the Hands of the original Proprietors, under the Condition of paying ſuch Duties, which as long as they paid, they entitled them and their Heirs to the perpetual Poſſeſſion. It appears by a Paſſage in *Pliny Epiſt.* 7. that this Revenue was commonly reckon'd *ad Rationem uſuræ trientis*, or four *per Cent.* This is ſomewhat obſcurely expreſt: if it is meant of the Value of the Purchaſe, it was very high; it being hardly poſſible to make ſo much of Land, unleſs it was reckon'd at a very low Price. Theſe Lands were ſometimes called *Quæſtorii*, from their being put to Sale by *Quæſtors* or Commiſſioners for that purpoſe. Sometimes thoſe Lands were out upon Leaſes of *Luſtra* or four Years, after the Expiration of which Term the Tenants were obliged to renew. There were Lands called *Aſſignati*, which were entirely divided among the *Veterans* with the Obligation only of certain Services, and the Proprietors might diſpoſe of them on the ſame Condition. The Reader may ſee long but not very clear Accounts of theſe Matters in *Hyginus de Limitibus.*

The *Roman* Taxes, in the more early times of their Empire, conſiſted chiefly in *Vectigalia* and *Tributa.* The *Vectigalia* were of three ſorts, from Tillage, Paſturage, and Carriage of Goods.

[a]The Tax upon Tillage may be reckoned at two Shillings in the Pound in arable Ground, and four Shillings in Plantations. This

[a] Appian. lib. 1. Civil. Δεκάτην μὲν τῶν σπειρομένων, πέμπτην δὲ τῶν φυτευομένων.

This Tax was often levied in kind upon Corn, and called *Decumæ* or Tithes. *Cicero* ſpeaks frequently of theſe *Decumæ* in *Sicily*, in his Orations againſt *Verres*. The Tax upon Paſturage was raiſed according to a certain Rate, *per* head, upon Cattle. It was called *Scriptura*. There is a Paſſage in the *Theodoſian* Code which ſtates this at four *Siliquæ* the head, or 5 ½ *d*.

[b] The *Portorium* or Tax upon Carriage was what we call the Cuſtoms upon Trade and Shipping; it was exacted in Harbours, Rivers, and ſometimes in the Paſſage of Bridges, at different Rates in different times, Goods and Countries. It ſometimes amounted to the fortieth or fiftieth Part, and in ſome Caſes very near half the value of the whole Goods.

Tributum, properly ſpeaking, was a Tax upon Individuals; one ſort of it was called *Capitatio*, a Pole-tax. Beſides the forementi-on'd Taxes, there were ſeveral Exciſes, as that formerly mention'd laid on by *Cato* upon Luxury and Expences; which perhaps was only temporary. There was a Salt Tax laid on very early. [c] *Ancus Martius* made the firſt Magazines of Salt. *Salarium* or Salary is derived from *Sal*.

The *Cenſus* was a Valuation of the Eſtates of Particulars, for a Rule of Taxing to the Government as Occaſion ſerv'd; and is improperly confounded with the *Capitatio*.

Afterwards there was ſuch a Multitude of Exciſes laid on by the Emperors, that there was hardly any thing eſcap'd; as the *Vectigal Macelli*, a Tax upon Meat: [d] which was once taken away as a Grievance, but impoſed again in *Caligula*'s time. A Tax upon Metals, and by the *Pappian* Law the tenth of Inheritances of ſuch as died without Heirs. *Vectigal Lupanarium & Matrimonii*, a Tax upon Stews and Marriages. [e] Five *per Cent.* upon manumitted Slaves. [f] Four *per Cent.* on Slaves that were ſold. [g] One *per Cent.* upon Auctions. The *Tributum Artificium*, a Tax upon Tradeſmen. *Vectigal fluminum*. [h] *Ædilium Tributum* upon Plays. [i] A Tax upon

[b] Velleius Paterculus. [c] Liv. lib. 31. [d] Suet. in Calig. [e] Liv. lib. 7. [f] Dio. lib. 55. [g] Suet. in Auguſto. [h] Cic. lib. 2. Epiſt. ad Attic. [i] Boadicia apud Xiphilinum.

upon the dead. A Tax upon Urine and Dung called *Chrysargyron*: from which perhaps the Expression of Gold-finders may come. Besides these and several others too numerous to mention, there were voluntary Oblations of the *Senators*: and to sum up all, at last they tax'd [k] *Fumum, Aerem & Umbram*, Smoak, Air, and Shade.

Another Fund of Riches of the *Roman* Government was the Treasure that they plunder'd from their Conquests, in *Specie*, Jewels, Plate, *&c.* some Particulars of which remain upon Record, and are as follows.

[l] *Paulus Æmilius*, after he had overcome *Perseus* King of *Macedonia*, brought into the Treasury *H-S.* $\overline{\text{MM}}.\overline{\text{CCC}}$. 1.856770 *l.* 16 *s.* 8 *d.*

[m] *Scipio* having conquered *Antiochus*, brought to it *Bis Millies*, 1.614583 *l.* 16 *s.* 8 *d.*

[n] Before the third *Punick* War, when *Sextus Julius* and *Lucius Aurelius* were *Consuls*, there was in the Treasury, of Gold 16810 *Pondo*, which reckon'd in the decuple Proportion is 455971 *l.* 5 *s.* Of Silver 22070 *Pondo*, 59864 *l.* 17 *s.* 6 *d.* And of coin'd Money *Sexagies Bis*, and 85400 *H-S.* 50741 *l.* 10 *s.* 2 ½ *d.* which in all comes to 566577 *l.* 12 *s.* 8 ½ *d.*

[o] When *Sextus Julius* and *L. Marcius* were Consuls, there was in the Treasury 1.920829 *Pondo* of Gold, 52.102486 *l.* 12 *s.* 6 *d.*

This is according to *Harduin*'s Explication of *Pliny*'s Numbers, but the Sum seems too extravagant, and perhaps the Numbers are not correct.

[p] *Cæsar* brought at once to the Treasury 65000 Talents, 12.593750 *l.* Qu? Larguith.

[q] And

[k] Zonaras. [l] Plin. lib. 33. cap. 3. Intulit Paulus Æmilius, Perseo victo, è Macedonica præda H-S. $\overline{\text{MM}}.\overline{\text{CCC}}$. [m] Idem. lib. 38. [n] Idem lib. 33. cap. 3. Auri in Ærario populi Romani fuere, Sex. Julio, L. Aurelio Coss. Septem annis ante bellum Punicum tertium pondo XVI. DCCCX. argenti XXII. LXX. & in numerato LXII. LXXXV. CCCC. [o] Idem ibidem. Item Sex. Julio, L. Marcio consulibus, hoc est belli socialis initio auri $\overline{\text{XVI}}$. XX. DCCCXXIX. [p] Plutarch. in Cæsare.

[q] And when he first enter'd *Rome* in the beginning of the Civil War, he took out of the Treasury 25000 *Pondo* of Gold, 678125 *l.* 35000 *Pondo* of Silver, 94937 *l.* 10 *s.* and in Coin *H-S.* $\overline{\text{CCCC}}$. 322916 *l.* 13 *s.* 4 *d.* which three Sums amount to 1.095979 *l.* 3 *s.* 4 *d.*

[r] *Tiberius* left in the Treasury *vicies septies millies*, 21.796875 *l.*

Some other Conjectures, concerning the Value of the Revenues of the Empire, may be made from such Memoirs as are left us of the Revenues of particular Provinces. *Appian*, who was cotemporary with *Adrian*, in the Preface of his History, thus describes the Bounds of the *Roman* Empire: In *Africa*, *Hercules*'s Pillars and the Eastern *Æthiopians*; in *Asia*, the River *Euphrates*, Mount *Caucasus*, the beginning of the greater *Armenia*, and the *Colchi* inhabiting about the *Euxine* Sea; in *Europe*, the *Rhine*, and the *Ister* or *Danube*, comprehending all the Islands belonging to these Countries.

To begin with *Ægypt*: *Appian*, speaking of its Forces, saith that in the Reign of the second King after *Alexander*, there was in the *Ægyptian* Treasury 74 *Myriads* of Talents, or 191.166666 *l.* 13 *s.* 4 *d.* Qu? Larguith.

[s] *Strabo* quotes *Cicero*, mentioning the Revenue of *Ægypt* to have been (in the time of *Auletes*, Father to *Cleopatra*) 12500 Talents, 2.421875 *l.*

He adds, that if *Auletes*, who was a very negligent Prince in the Administration of Affairs, made so much, what must now the *Romans* make, who govern it so wisely; especially since the *Indian* and *Troglodytick* Trade had greatly augmented the Revenues?

Agrippa

q Plin. lib. 33. cap. 3. C. Cæsar primo introitu urbis in civili bello suo, ex ærario protulit laterum aureorum XXV. M. argenteorum XXXV. & in numerato, H-S. $\overline{\text{CCCC}}$.

r Suetonius in Caligula.

s Τῆς Αἰγύπτου δὲ τὰς προσόδους ὁν τινὶ λόγῳ Κικέρων φράζει, φήσας, κατ' ἐνιαυτὸν τῷ τῆς Κλεοπάτρας πατρὶ τῷ Αὐλητῇ προσφέρεσθαι φόρον ταλάντων μυρίων καὶ δισχιλίων πεντακοσίων. Ὅπου οὖν ὁ κάκιστα καὶ ῥαθυμώτατα τὴν βασιλείαν διοικῶν τοσαῦτα προσωδεύετο, τί χρὴ νομίσαι τὰ νῦν διὰ τοσαύτης ἐπιμελείας οἰκονομούμενα, καὶ τὴν Ἰνδικῶν ἐμπορίων, καὶ τῶν Τρωγλοδυτικῶν ἐπηυξημένων ἐπὶ τοσοῦτον.

[t] *Agrippa*, in his Oration to the *Jews*, recorded by *Joſephus*, tells them that the *Roman* Empire had ſeventy five Millions of Inhabitants paying Taxes, beſides the People of *Alexandria* (which City, as he there deſcribes the Dimenſions of it by *Stadia*, was near three *Engliſh* Miles and a half in Length, and half of that in Breadth) and, ſaith he, beſides furniſhing *Rome* yearly with four Months Proviſion of Corn, pays more Taxes in a Month than you do in a Year. And what *Judæa* was tax'd at, may in ſome meaſure appear from the following Particulars. [u] *Caſſius*, after *Cæſar*'s Death, rais'd out of it 700 Talents, 135625 *l.* [x] And *Herod* left to *Cæſar* 1000 *Myriads*, 322916 *l.* 13 *s.* 4 *d.* and half of that to his Spouſe, 161458 *l.* 6 *s.* 8 *d.*

[y] *Veſpaſian* impoſed a *Didrachm* as a Pole-tax on that Nation, *viz.* 1 *s.* 3 ½ *d.* [z] And their Number being reckon'd ſeven Millions, that Tax will amount to fourteen Millions of *Drachms*, 452083 *l.* 6 *s.* 8 *d.*

Then if we reckon twelve times as much for the Taxes of *Alexandria*, according to *Agrippa*'s Speech, they will come out 168 Millions of *Drachms*, 5.425000 *l.* But it will be fairer to reckon it twelve times the ſum of *Caſſius*, *viz.* 1.627500 *l.*

It's certain the Cuſtoms of *Alexandria* were very great, it having been the Staple of the *Indian* Trade, which alone, according to * *Pliny*, carried yearly out of *Rome quingenties H-S*, 403645 *l.* 16 *s.* 8 *d.* And with ſome other Branches mention'd by the ſame Author, there was yearly carried out of *Rome*, *Centies*, or 807291 *l.* 13 *s.* 4 *d.*

[a] The *Carthaginians*, after *Hannibal*'s Overthrow, paid the *Romans* yearly only 200 Talents, 38750 *l.*

The Revenues of *Aſia* in the time of *Darius* were not very great; for, according to *Herodotus*, all the Revenues in Money which *Darius* drew from *Aſia*, *Egypt* and the *Indies* amounted only to 7740 *Babylonian* Silver Talents, 1.749562 *l.* 10 *s.* and 360 of

[t] Joſephus lib. 2. de Bell. Judaico
[u] Idem lib. 14.
[x] Idem ibid.
[y] Idem lib. 7.
* Lib. 6. cap. 23. Digna res nullo anno Imperii noſtri minus H-S. quingenties exhauriente India, & merces remittente quæ centuplicato veneunt.
[a] Livius lib. 30.

Gold, which *Herodotus* reckons thirteen times the Value of ſo many Silver Talents, or 1.057175 *l.* in all making 2.807437 *l.* 10 *s.* Qu? Langwith

[b] *Cicero* reckons *Aſia* for its Fruitfulneſs, and the great Quantities of Commodities for Exportation, far above all other Countries. *Appian* ſaith that *Sylla* ordered *Aſia* to pay four Years Tribute, which *Plutarch* tells us was 20000 Talents, 3.875000 *l.*

And therefore in *Sylla*'s time the yearly Tribute of *Aſia* was 5000 Talents, 968750 *l.* Qu? Langwith.

Plutarch likewiſe relates that before *Pompey*'s time, the Tribute of *Aſia* was only 5000 *Myriads* of *Drachms*, 1.614583 *l.* 6 *s.* 8 *d.* but that by his Conqueſts it was augmented to 8500 *Myriads*, 2.744791 *l.* 13 *s.* 4 *d.* yet *Plutarch* ſaith that *Antony* made *Aſia* pay at once 20 *Myriads* of Talents, 38.750000 *l.*

But *Appian* writes that this Sum was the Tribute of ten Years; ſo that in *Antony*'s time the yearly Tribute of *Aſia* was 2 *Myriads* of Talents, 3.875000 *l.*

As to *Gaul*, [c] *Cæſar* exacted from it yearly *quadringenties*, 322916 *l.* 13 *s.* 4 *d.*

Lipſius is of opinion that *quatermillies* ſhould be read for *quadringenties*, which would make the Sum ten times bigger, *viz.* 3.229166 *l.* 13 *s.* 4 *d.*

But it is not probable that *Gaul* would be able to pay ſuch a Sum yearly, immediately after long Wars. However *Velleius Paterculus* affirms that *Gaul* was reckoned on the ſame Footing with *Ægypt* as to Taxes.

There are no Paſſages in old Authors, whereby the Tribute of *Spain* can be found; no doubt it was very great, on the account of the Mines. *Strabo* tells that the Mines at *Carthagena* yielded the *Romans per diem* to the Value of 25000 *Drachms*, 807 *l.* 5 *s.* 10 *d.* which *per annum* makes, 294661 *l.* 9 *s.* 2 *d.*

[d] *Hannibal*

[b] Cicero pro Imp. Cn. Pom. Nam cæterarum provinciarum Vectigalia Quirites, tanta ſunt ut his ad ipſas provincias tutandas vix contenti eſſe poſſumus. Aſia vero tam opima & fertilis, ut & ubertate agrorum & varietate fructuum, & magnitude paſtionis, & multitudine eorum quæ exportantur, facile omnibus terris antecellat.

[c] Eutropius, lib. 6.

[d] *Hannibal* got *per diem* out of the *Spaniſh* Mines 300 *Pondo* of Silver, 968 *l.* 15 *s.* which in the Year comes to 353563 *l.* 15 *s.*

[e] *Aſturias*, *Gallicia* and *Luſitania* paid yearly 20000 *Pondo* of Gold, or 645833 *l.* 6 *s.* 8 *d.*

[f] There was a Mine in *Dalmatia* which yielded *per diem* 50 *Pondo* of Gold, 1614 *l.* 11 *s.* 8 *d.* which in the Year comes to 589322 *l.* 18 *s.* 4 *d.*

The *Macedonians* paid yearly 2000 Talents, or 387500 *l.* as appears from 2 *Macab.* viii.

[g] *Strabo* tells you that *Britain* bore heavy Taxes, eſpecially the Cuſtoms on the Importation and Exportation of the *Gallick* Trade.

The greatneſs of the *Roman* Revenues does likewiſe appear from the vaſt Sums ſpent by the Emperors on *Donatives* and *Congiaria*, which are mention'd before.

It appears that *Nero* ſpent that way 17.760416 *l.*

What *Vitellius* ſpent I have mention'd before. *Dio* makes the Sum amount to 18.532296 *l.* 13 *s.* 4 *d.*

[h] *Caligula* ſpent within the Year 21.796875. *l.*

[i] *Veſpaſian*, at his Acceſſion to the Empire, ſaid, that to ſupport the Commonwealth there was need of no leſs than *Quadringenties Millies*, 322.916666 *l.* 13 *s.* 4 *d.* which is a Sum ſo great, that it ſeems impoſſible to be raiſed in many Years out of the Taxes of the whole Empire.

[k] The *Roman* Empire under *Auguſtus* maintain'd forty four Legions. Let us ſuppoſe theſe Legions full, conſiſting of 10 *Cohortes*, whereof the firſt was *Millenaria*, a 1000 Men; the reſt of 500 a-piece. According to this Computation the Legions will make 242000 Men, beſides the *Prætorian* Bands and ſome Cavalry.

The Eſtabliſhment of *England* in the Year 1711 was above

[d] Plin. lib. 33. cap. 6. [e] Plin. lib. 33. cap. 3. [f] Idem ibid. [g] Lib. 4. [h] Tacitus lib. 17. [i] Suetonius in Veſpaſiano cap. 16. Quadringenties millies (ſcilicet H-S.) Veſpaſianus ſtatim initio ſui principatus opus eſſe profeſſus eſt, ut republica ſtare poſſet. [k] Oroſius lib. 6.

201000 Men; and that of *France* was much greater than this of *Auguſtus*.

But one may ſay that this Force was too great for either Kingdom to exert, and could not be done without incurring an immenſe Debt.

CHAP. XIX.

Some Obſervations upon the Grecian *Money Affairs.*

THO' I have not leiſure to make ſo long and particular a Diſſertation upon the Riches and Money of *Greece* as I have done on thoſe of *Rome*, yet to gratifie the Curioſity of the Reader, I have collected a few Matters of Fact, that will enable him to make ſome Judgment in what relation the Wealth of *Greece* ſtood to that of *Rome*.

The firſt *Cenſus* of the *Athenians*, as it was inſtituted by *Solon*, was after the following manner,

Thoſe of the firſt Claſs were called *Pentacoſiomedimni*, or, as the word imports, ſuch as could afford 500 *Medimni* or Meaſures of dry or liquid things; I ſuppoſe as of Corn, Wine and Oyl. A *Medimnus* contains 4 *Pec.* 1 *Gal.* 1 *Pin.* 053 *S. In.* conſequently 500 *Medimni* of Corn for Example make about 71 *Qua.* 2 *Buſh.* 1 ¾ *Peck.*

Thoſe of the ſecond Claſs were termed *Zeugitæ*, from Yokes of Oxen and Horſes.

Thoſe of the third were called *Hippæi* or Horſemen.

Thoſe of the fourth were called *Thetes*, or ſuch as dealt in Workmanſhip and Manufactures, theſe were excluded from any Share in the Magiſtracy.

The

The firſt Claſs was ſuppoſed to be able to make the Expences of a Talent, or 193 *l.* 15 *s.*

The *Hippæi* were ſuppoſed to be able to ſpend half a Talent, or 96 *l.* 17 *s.* 6 *d.*

The *Zeugitæ* were ſuppoſed to be able to ſpend 32 *l.* 5 *s.* 10 *d.*

The fourth Claſs were ſuppoſed not to be worth any thing, or incapable of making any publick Expences.

The Reader may ſee a full Account of this *Cenſus* in the Authors mark'd at the Bottom of the Page*, the Paſſages are too long to tranſcribe.

[a] Corn was reckoned commonly at a *Drachma* the *Medimnus*, or 7 ½ *d. per* Quarter 4 *s.* 6 *d*

[b] In *Demoſthenes*'s time it was much higher, at 5 *Drachms* the *Medimnus*, which makes it *per* Quarter 1 *l.* 2 *s.* 7 ½ *d.*

[c] There were indeed two of the greateſt Dearths at *Athens* that ever were known in any Country. One in which the Price of Wheat came to 300 *Drachms* the *Modius*, *per* Quarter 305 *l.* 13 *s.* 9 *d.*

[d] The other was when *Athens* was beſieged by *Sylla*, when Corn was *per* Quarter 226 *l.* 8 *s.* 8 ½ *d.*

In times of Plenty the [e] Price of a Sheep was 7 ½ *d.*

[f] The Price of a Hog 1 *s.* 11 ½ *d.*

[g] The Price of an Ox 3 *s.* 2 ½ *d.*

Theſe Prices, which ſeem much upon a *par* with the early Rates of Cattle at *Rome*, muſt have been when Money was not in ſo great Plenty, for they keep no Ballance with the Price of Corn above mentioned; nor [h] with the Price of a Horſe which was 12 *Minæ*, or 38 *l.* 15 *s.* But Horſes came out of the Eaſt-country, and were at firſt ſcarce in *Greece*.

[i] A Soldier's daily Pay was a *Drachma*, as a *Denarius* at *Rome*, 7 ½ *d.*

There

* Ariſtol. 2. Politicon. Plut. in Solone. Pollux lib. 8. [a] Plut. in Solone. [b] Demoſthenes contra Phormionem. Philippus lib. 2 Chronic. [c] Plut. in Demetrio. [d] Idem in Sylla. [e] Plutarch. in Solone. [f] Ariſtophanes in Pace. [g] Plutarch. in Solone. [h] Ariſtophanes in Nebulis. [i] Demoſth. Olynth. 1.

There were ſome Soldiers called *Didrachmæ*, from having double that Sum, 1 *s.* 3 ½ *d. viz.* the ſecond *Drachma* for a Servant.

[k] There is likewiſe mention'd by *Xenophon* a *Tetrobolon*, a Soldier's Pay, 5 ½ *d.*

[l] The Pay of a Horſeman *per* Month, beſides his Proviſions was no more than 30 *Drachms*, (that is a *Drachm* a day) 19 *s.* 4 ½ *d.*

The *Greeks*, eſpecially the *Athenians*, were great Encouragers of Arts. [m] The yearly Pay of a common School-maſter was a *Mina* or 3 *l.* 4 *s.* 7 *d.*

[n] The ſame was the Reward of a Teacher of *Dialecticks*.

[o] The Reward of a *Sophiſt* was 4 or 5 *Minæ*, 12 *l.* 18 *s.* 4 *d.* or 16 *l.* 2 *s.* 11 *d.*

[p] *Gorgias* the Orator had from his Scholars 1000 *Minæ*, or 322 *l.* 18 *s.* 4 *d.*

According to *Suidas* the Reward of the *Sophiſts* was a Talent, 193 *l.* 15 *s.*

[q] The yearly Penſion paid *Democedes* the Phyſician by the *Athenians* was 100 *Minæ*, or 322 *l.* 18 *s.* 4 *d.*

[q] The *Æginetæ* paid him yearly the Penſion of a Talent, or 193 *l.* 15 *s.*

[q] He had a Penſion from *Polycrates Samius* of two Talents, 387 *l* 10 *s.*

[r] *Iſocrates* had from his Diſciples a *Didactron*, or Reward of 1000 *Minæ*, 3229 *l.* 3 *s.* 4 *d.*

[s] *Pamphilus* a Painter had from his Apprentices a Talent a year, 193 *l.* 15 *s.* and they were bound, it ſeems, for ten Years. *Budæus* reads it, *Docuit neminem minoris talentis annuis quadraginta*, and that from the Authority of an ancient Manuſcript: But this Sum is incredible, being no leſs yearly than 7750 *l.*

[t] *Iſocrates* had a Talent for inditing the Letters which *Timotheus* ſent to *Athens*, or 193 *l.* 15 *s.*

When

[k] Xenoph. lib. ἑλληνικῶν. [l] Demoſthenes Philip. 1. [m] Athenæus lib. 13. [n] Cicer. lib. 4. Acad. quæſt. [o] Iſocrates contra Sophiſtas. [p] Suidas. [q] Herodot. lib. 3. [r] Plutarch. in Iſocrate. [s] Plin. lib. 35. cap. 18. [t] Plut. in Iſocrate.

[a] When *Amœbæus* the Harper ſung in the Theatre at *Athens*, his Pay *per diem* was a Talent, 193 *l.* 15 *s.*

[z] *Heleyon* got from *Dionyſius* a Talent, or 193 *l.* 15 *s.* becauſe he had foretold an Eclipſe of the Sun.

[y] *Demoſthenes* ſold the Silence of one Day for 20 Talents, or 3875 *l.* to *Harpalus*, and he was fined for it 50 Talents, 9687 *l.* 10 *s.*

[x] The Judges at *Athens* had 150 Talents, 29062 *l.* 10 *s.*

[w] The Rewards of the *Iſthmian* and *Olympick* Games were but ſmall, as they were inſtituted by *Solon*: The Honour of the Victory was the chief Encouragement. To the Victor in the *Iſthmian* Games the Reward was only 100 *Drachmæ*, or 3 *l.* 4 *s.* 7 *d.* To the Victor in the *Olympick* Games 500 *Drachmæ*, or 16 *l.* 2 *s.* 11 *d.*

[b] 500 *Drachmæ* in thoſe early Days was thought a competent Fortune for a Gentlewoman, and was raiſed by Contribution by her Friends, 16 *l.* 2 *s.* 11 *d.*

[c] The *Athenians* gave 3000 *Drachmæ*, 96 *l.* 17 *s.* 2 *d.* to the two Daughters of *Ariſtides*, he himſelf being very poor.

Eminent Painters had great Prices for their Pictures; I took notice before, that [d] *Aſclepiodorus* had paid him by *Theommeſtus* for every Figure of a Hero 100 *Minæ*, or 322 *l.* 18 *s.* 4 *d.*

[e] There were 100 Talents, 19375 *l.* of Tribute, remitted to the *Coi* for the *Venus* of *Apelles*.

[f] As to Books, I took notice before that a few Manuſcripts of *Philolaus* were ſold for 100 *Minæ*, or 322 *l.* 18 *s.* 4 *d.*

[g] *Ptolomy Philadelphus* bought of the *Athenians* the original Manuſcripts (or thoſe perhaps which were given out to be ſuch) for 15 Talents, or 2906 *l.* 15 *s.*

[h] *Iſocrates* ſold one Oration to *Nicocles*, King of *Cyprus*, for 20 Talents, 3875 *l.* which was the ſame Price that *Demoſthenes* had for holding his Tongue.

All

[a] Athenæus lib. 14. [x] Plutarch in Dione. [w] Plutarch. in Demoſthene. [z] Ariſtoph. in Veſpis. [y] Plut. in Solone. [b] Suidas in Θήτα. [c] Plutarch. in Ariſtide. [d] Plin. lib. 35. cap. 10. [e] Strabo. lib. 14. [f] Diog. Laert. lib. 3. Gell. lib. 3. cap. 17. [g] Philippus in Declamat. de ſtudiis veteris Philoſophiæ. [h] Plutar. in Socrate.

[i] All these Rewards came vastly short of what was paid *Aristotle* by *Alexander* for his natural History of Animals, being no less than 800 Talents, or 155000 *l.*

The Punishments of free Governments are commonly gentle, accordingly the [k] legal Fines are commonly but small; 100 *Drachmæ*, 3 *l.* 4 *s.* 7 *d.* was the common Fine for a Rape appointed by *Solon.*

[l] The Fine of a Slanderer, or one that betrayed Secrets, was 500 *Drachmæ*, 16 *l.* 25 *s.* 11 *d.*

But great Men who mis-served their Country, were often fined very highly; as [m] *Pericles*, who was fined 50 Talents, 9687 *l.* 10 *s.*

Miltiades was fined the same Sum.

[n] And *Demades* paid ten *Myriads* of *Drachms*, or 3229 *l.* 3 *s.* 4 *d.* for a hundred Strangers who danced at *Athens* against Law.

[o] It was a pretty large Fine that was imposed by *Cassius* on *Rhodes*, no less than 500 Talents, or 96875 *l.*

[p] But nothing ever came up to the Extravagance of the Expences of the Funeral of *Hephæstion* by *Alexander*, being no less than 12000 Talents, or 2.225000 *l.* Qu. Langwith.

Plutarch makes this only 10000 Talents, or 1.937500. *l.*

Indeed one must own he had plentiful Sources of Riches and Treasure for such Expences. [q] The Crowns that were sent him in Presents at his Marriage were reckoned worth 15000 Talents, or 2.906250 *l.*× Q. *Curtius* affirms that at *Susæ* and *Persepolis* he got no less than 150000 Talents, or 29.062500 *l.* Qu. Langwith

[r] He found in the House of *Bagoas* wearing Apparel to the Value of 1000 Talents, or 193750 *l.*

[s] The Riches of *Damascus* only in coined Money was 503750 *l.*

× Qu? Langwith

The

i Athen. lib. 9 & 12.
k Plut. in Solone.
l Isocrates contra Lochitam.
m Suidas.
n Plut. in Phocione.
o Plut. in Bruto.
p Justin. lib. 12. Diodor. Siculus in Alexandro lib. 17.
q Athenæus lib. 12.
r Plut. in Alexandro.
s Quint. Curt. lib. 3.

[t]The Foot-ſtool of *Darius* was valued at 3000 Talents, or 581250*l.*

After ſuch an immenſe Value for a Foot-ſtool, one muſt not wonder at the Price of the Scabbard of *Mithridates*'s [u]Sword, which one *Publius* having ſtole, ſold to *Ariarathes* for 400 Talents, 77500*l.*

His father *Philip*'s Revenues were very inconſiderable in reſpect of ſuch Sums. [x]*Diodorus Siculus* reckons as a prodigious Sum the thouſand Talents that were yearly paid to *Philip*, 193750*l.*

And *Herodotus* makes the three Governments of *Aſia* pay [y] yearly only 1470 Talents, 284812*l.* 10*s.*

As *Alexander* received great Sums, he was no leſs generous and liberal in diſburſing of them; and it may gratify the Curioſity of the Reader to give ſome Account of them, that he may compare them with the Liberality of the *Roman* Emperors.

[z]At one time he gave to each of his Soldiers 96*l.* 17*s.* 6*d.*

[z]He diſcharged 900 Soldiers by reaſon of their Age, and to every Foot Soldier of them he gave 96*l.* 17*s.* 6*d.* and to every Horſeman 397*l.* 10*s.*

[a]He gave a Donative to each of the foreign Horſemen in his Service of 500 *Denarii*, or 16*l.* 2*s.* 11*d.*

He gave to the *Macedonian* Horſe, 19*l.* 7*s.* 6*d.*

[b]To the Soldiers who were to return to their own Country, he odered *per* man 32*l.* 5*s.* 10*d.*

[b]And at another time he gave to each Soldier who returned home, 96*l.* 17*s.* 6*d.*

[c]At one time he gave to each Horſeman, 193*l.* 15*s.*

[d]He gave likewiſe 2000 Talents, 387500*l.* as a free Gift to the *Theſſalians*. [e]And after all he left in his Treaſure at his Death 100000 Talents, 19.375000*l.* No wonder, ſince his yearly Tribute, as the ſame Author hath delivered it, was 300000 Talents, 58.125000*l.*

[t] Athenæus lib. 12. [u] Plut. in Pompeio. [b] Idem ibid. [c] Idem. lib. 6. [d] Plut. in Alexandro. [e] Juſtin. lib. 13.
[x] In Philippi anno 3. [y] Herodot. lib. 3.
[z] Curt. lib. 7. [a] Idem lib. 5.

You have all thoſe Sums as they are delivered by the Authors, whoſe Credit muſt anſwer for them.

The *Romans* could never be ſaid to be rich before their Conqueſt of *Greece*. *Greece* was much richer than *Italy*, and *Aſia* than *Greece*. The Revenues of the *Athenian* Commonwealth were vaſtly greater than thoſe of *Rome*, conſidering the ſmall Extent of their Dominions; for the *Athenian* Dominions were always very ſmall, the *Romans* very early had acquired a much larger Territory, and yet were very poor. This will appear from the following Account of the *Athenian* Revenues.

[f] *Demoſthenes* tells you, that the Revenue of *Athens* in early times was 130 Talents, 25187 *l.* 10 *s.*

That it had received an Addition of 400, or 77500 *l.* which makes in all 102687 *l.* 10 *s.*

[g] *Xenophon* calculates the Revenue at 1000 Talents, or 193750 *l.*

[h] According to *Ariſtophanes*, it was 2000 Talents, or 387500 *l.*

Thucydides brings in *Pericles* ſpeaking of their Wealth, and reckoning the yearly Tribute of their Confederates 600 Talents, 116250 *l.*

[i] *Demetrius Phalareus*, when he was at the Head of their Affairs, had in his Power a Revenue of 1200 Talents, or 232500 *l.*

[k] *Thucydides* affirms that there were in the Caſtle at one time 6000 Talents, 1.162500 *l.*

[l] *Iſocrates* ſaith that *Pericles* brought into the Caſtle 8000 Talents, 1.550000 *l.*

[m] *Lycurgus*, Son of *Lycophron*, brought into the Treaſury more than 6500 Talents. 1.259375 *l.*

[n] They were able to undertake very great Works, and laid out on the Caſtle 2012 Talents, 400235 *l.*

The *Attick* Dominions upon the Continent were ſcarce ſo big as *Yorkſhire*: What a Figure did this Republick make in the World with ſo ſmall a Dominion!

The

[f] Philip. 4 in Veſpis. [g] Lib. 7. Anab. [h] Ariſtoph. in Veſpis. [i] Athenæus lib. 12. [k] Lib. 2. [l] Iſocrates de pace Atticis. [m] Pauſanias in [n] Suidas in voce προσόδοια.

The *Macedonians*, who had a much larger Dominion, did not, after they were ſubdued, pay above 100 Talents Tribute to the *Romans*, 19375 *l.*

I ſhall conclude this Chapter with one Inſtance of the *Aſiatick* Riches, the Credit of which Story I leave the Authors to anſwer for. It is the Value of the Treaſure of *Sardanaplus*, with which he made a Funeral Pile for himſelf and Family, when he was beſieged by *Arbaces*, King of the *Medes*. *Athenæus* makes the Value of the Treaſure of this Pile to amount to 100.000000 Talents, which reckoned in *Babylonick* Talents, amounts to 16953.125000 *l.*

This was only the Value of the Silver; there was beſides a tenth part of that Number of Talents of Gold, which, if Gold was reckon'd in a decuple Proportion, will juſt double the Sum.

CHAP. XX.

Some Examples of the Application of the Tables relating to the Money-Affairs of the Jews.

[a]WHEN *Saul* and his Servant went to conſult *Samuel* about finding their loſt Aſſes, they deſigned to have given him the fourth part of a Shekel, 7½ *d.*

[b]*Jeremiah* bought *Hanameel*'s Field for 17 Shekels, 2 *l.* 3 *s.* 11 *d.*

[c]*David* gave unto *Araunah* for his threſhing Floor and Oxen 50 Shekels, 6 *l.* 9 *s.* 2 *d.*

[d]The ſame is related differently in another Place, where it is ſaid that *David* gave unto *Ornan* for the Place 600 Shekels of Gold, 1240 *l.*

[e]*Omri*, King of *Iſrael*, bought the Hill *Samaria* for two Talents, 387 *l.* 10 *s.*

[a] 1 Sam. ix. [b] Jer. xxxii. [c] 2 Sam. xxiv. [d] 1 Chron. xxi. [e] 1 Kings xvi.

[f]The Eſtimation of a Male from twenty Years old to ſixty is 50 Shekels, 6 *l.* 9 *s.* 2 *d.* if it be a Female, the Eſtimation is 30 Shekels, 3 *l.* 17 *s.* 6 *d.* if it be a Male from five Years old to twenty, the Eſtimation is twenty Shekels, 2 *l.* 11 *s.* 8 *d.* and if a Female 10 Shekels, 1 *l.* 5 *s.* 10 *d.* if it be a Male from a Month to five Years old, the Eſtimation is 5 Shekels, 12 *s.* 11 *d.* and if a Female 3 Shekels, 7 *s.* 9 *d.* If it be ſixty Years old or upwards, the Eſtimation of a Male is 15 Shekels, 1 *l.* 18 *s.* 9 *d.* and that of a Female 10 Shekels, 1 *l.* 5 *s.* 10 *d.*

If a Man ſhall ſanctify unto the Lord ſome part of a Field, the Eſtimation ſhall be according to the Seed, an Homer of Barley (1 *Quart.* 3 *Buſh.*) ſhall be valued at 50 Shekels, 6 *l.* 9 *s.* 2 *d.*

[g]The Firſt-born was redeemed for five Shekels, 12 *s.* 11 *d.*

[h]When the Children of *Iſrael* were numbered, each above twenty Years old was obliged to pay half a Shekel, 1 *s.* 3½ *d.* and their Number was 603550, ſo that the Sum came in all to 38979 *l.* 5 *s.* 5 *d.*

[i]When *Ben-hadad*, King of *Syria*, beſieged *Samaria*, an Aſs's Head was ſold for 80 Pieces of Silver, 10 *l.* 6 *s.* 8 *d.* and the fourth part of a *Cab.* (*i. e.* about a Pint) of Doves Dung for five Pieces, 12 *s.* 11 *d.*

[k]*Micah* gave unto his Prieſt, beſides Victuals and Cloaths, ten Shekels of Silver yearly, that is 1 *l.* 5 *s.* 10 *d.*

[l]*Hoſea* bought a Woman for fifteen Pieces of Silver, 1 *l.* 8 *s.* 9 *d.* and an Homer and an half of Barley, which is more than two Quarters,

[m]*Joſeph*'s Brothers ſold him for twenty Pieces of Silver, 2 *l.* 11 *s.* 8 *d.*

[n]If an Ox puſh one, his Owner was obliged to pay thirty Shekels of Silver, 3 *l.* 17 *s.* 6 *d.*

[o]If a Man committed a Rape, he was obliged to marry the Woman, and pay her Father fifty Shekels, 6 *l.* 9 *s.* 2 *d.*

Abraham's

[f] Levit. xxvii.
[g] Numb. xviii.
[h] Exod. xxxviii.
[i] 2 Kings vi.
[k] Judges xvii.
[l] Hoſea iii.
[m] Gen. xxxvii.
[n] Lev. xxi.
[o] Deut. xxii.

[p] *Abraham*'s Servant made a present to *Rebeccah* of an Ear-ring of Gold weighing half a Shekel, 1 *l.* 8 *s.* and of golden Bracelets weighing ten Shekels, 20 *l.* 13 *s.* 4 *d.*

[q] The Crown of *Hanun*, King of the *Ammonites*, weighed a Talent of Gold, or 130 *lib. Troy*, and so was worth 6200 *l.*

[r] *Pharaoh-necho*, King of *Egypt*, during the Reign of *Jehoahaz*, imposed on the *Jews* a Tribute of 100 Talents of Silver, 38750 *l.* and one of Gold, 6200 *l.* which make together, 44950 *l.*

[s] *Menahem* gave to *Pul* 1000 Talents of Silver, 387500 *l.* to confirm the Kingdom in his Hands. And he raised the Money by exacting from each of the richer sort of the *Jews* fifty Shekels, 6 *l.* 9 *s.* 2 *d.*

[t] When *Sennacherib*, King of *Assyria*, invaded *Judah*, he was prevail'd on to return home for the Sum of 300 Talents of Silver, 116250 *l.* and 30 of Gold, 186000 *l.* in all 302250 *l.*

And *Hezekiah*, King of *Judah*, to raise this Sum, was obliged not only to advance all his own Treasure, but likewise to take the Plate out of the Temple.

[u] When *Anun*, King of the *Ammonites* was going to make War upon *David*, he sent 1000 Talents (387500 *l.*) into *Mesopotamia* to hire Chariots and Horsemen.

[x] *Amaziah*, King of *Judah*, hired 100000 Men for 100 Talents, 38750 *l.*

[y] After *Jotham*, King of *Judah*, overcame the *Ammonites*, he made them pay three Years successively 100 Talents, 38750 *l.* 10000 Measures of Wheat, and as many of Barley.

[z] *Haman* offered to pay 10000 Talents of Silver (3.875000 *l.*) to King *Ahasuerus* upon condition he would give Orders to destroy the *Jews*. But *Josephus* (*lib.* 2.) tells us that he offered four Myriads of Talents, which, if they be *Attick*, amount to 7.750000 *l.*

Artax-

p Gen. xxiv.
q 2 Sam. x.
r 2 Kings xxiii.
s 2 Kings xv.
t 2 Kings xviii.
u 1 Chron. xix.
x 2 Chron. xxv.
y 2 Chron. xxvii.
z Esther iii.

[a] *Artaxerxes*, King of *Perſia*, ordered to be paid to *Ezra* the Prieſt whatever he ſhould demand, as far as 100 Talents of Silver, 38750 *l.* 100 Meaſures of Wheat, 100 Baths of Wine, and 100 Baths of Oyl.

[b] *Ezrah* committed to the Cuſtody of the Prieſts 650 Talents of Silver, 251875 *l.* 100 Talents of Silver Veſſels, 38750 *l.* 100 Talents of Gold, 620000 *l.* and two Baſons of Gold of 100 Drachms, 51 *l.* 13 *s.* 4 *d.* which all together amounts to 910676 *l.* 13 *s.* 4 *d.*

[c] *Darius* ordered 39 Talents, or 7556 *l.* 5 *s.* to be paid the *Jews* yearly towards the building of the Temple, and defraying the Charge of the Burnt Offering.

[d] *Simon* the High-prieſt ſent Ambaſſadors to the *Romans* to renew their old Friendſhip, and with them a golden Shield weighing 1000 Pounds.

[e] *Antiochus* demanded of the *Jews* the Cities of *Joppe* and *Gazara*, or in the place of them 500 Talents, 96875 *l.* And for the Harm they had done, and for the Tributes of the Cities he demended 500 Talents more. But *Simon* the High-prieſt offered him only 100 Talents, 19375 *l.*

[f] *Jaſon*, to be made High-prieſt, offered to give *Antiochus* 360 Talents of Silver, 69750 *l.* and out of a certain Revenue 80 Talents more 15500 *l.* and 150 Talents, 22062 *l.* 10 *s.* upon condition that he ſhould get leave to train up the Youth in the Faſhions of the Heathen, and call the Inhabitants of *Jeruſalem* by the Name of *Antiochians*; which three Sums amount to 114312 *l.* 10 *s.*

But *Menelaus* being ſent to *Antiochus* with the Money, offered 300 Talents more, 58125 *l.* and ſo got the Prieſthood to himſelf.

[g] *Simon* the High-prieſt ſent 100 Talents, 19375 *l.* to *Tryphon*, that he might ſet his Brother *Jonathan* at liberty.

Heli-

a Ezra vii. b Ezra viii. c Ibid. f 2 Macab iv.
g 1 Eſdras iv. d 1 Macab. xv. g 1 Macab. xiii.

[h] *Heliodorus*, Treaſurer of *Seleucus*, carried out of *Jeruſalem* 400 Talents of Silver, 77500 *l.* and 200 of Gold, 620000 *l.* which had been laid up for the Relief of Widows and Orphans. Both Sums make 695500 *l.*

[i] When *Antiochus* conquered the *Jews*, he carried out of the Temple 1800 Talents of Silver, 348750 *l.*

[k] *Nicanor* undertook to raiſe 2000 Talents, 387500 *l.* by ſelling the Captive *Jews*, 90 for a Talent.

CHAP. XXI.

Of the Coſt of the Temple, *and the Riches of* David *and* Solomon.

[a] THE Furniture of the Table of Shew-bread, the Candleſtick and other Inſtruments were made of Gold, and weighed a Talent, 6200 *l.*

[b] There was laid out for the Altar of Burnt-offering, 29 Talents and 730 Shekels of Gold, 181308 *l.* 13 *s.* 4 *d.* 100 Talents and 1775 Shekels of Silver, 19604 *l.* 5 *s.* 5 *d.* and 70 Talents 2400 Shekels of Braſs.

[c] The moſt holy Houſe was overlaid with fine Gold, amounting to 600 Talents, 3.720000 *l.*

[d] *David* laid up of his own Money for building the Temple 3000 Talents of Gold, 18.600000 *l.* and 7000 of Silver, 2.712500 *l.* The Princes of the Tribes gave towards it 5000 Talents and 10000 Drachms of Gold 31.000516 *l.* 13 *s.* 4 *d.* 10000 Talents of Silver, 3.875000 *l.* 18000 Talents of Braſs, 100000 Talents of Iron.

David

[a] 2 Macab. iii.
[b] 2 Macab. viii.
[i] 2 Macab. v.
[a] Exod. xxv. & xxxvii.
[b] Exod. xxxiii.
[d] 1 Chron. xxix.
[c] 2 Chron. iii.

[e] *David* prepared in all for the Temple 100000 Talents of Gold, 620.000000 *l.* and 1.000000 Talents of Silver, 193.750000 *l.*

[f] *Hiram* King of *Tyre* gave unto *Solomon* 120 Talents of Gold, 744000 *l.*

[g] The Queen of *Sheba* gave him the ſame.

[h] *Solomon*'s Fleet brought from *Ophir* 420 Talents of Gold, 2.604000 *l.*

[i] *Solomon* in one year received 666 Talents of Gold, 4.029200 *l.* beſides what he got from the Merchants, the Governors of the Country, and the Kings of *Arabia.*

In theſe Computations the Shekel is ſuppoſed quadruple of the Drachma, according to *Joſephus.* And the proportion of Gold to Silver is ſixteen to one. The Talents in paſſages of the Old Teſtament are ſtated double the *Attick*, but in paſſages out of the *Apocrypha* the *Attick* Talent is uſed.

CHAP. XXII.

Of the Intereſt of Money.

IT is natural to ask, if Money was in ſuch Plenty in *Rome* and *Athens*, how came Intereſt to be ſo high?

To make a compleat Diſſertation upon the Intereſt of Money among the Ancients, would require a Volume larger than all this Treatiſe. But the Reader may take the following Account of it, as far as it coincides with my Deſign. The moſt ancient word for Intereſt was *Fœnus*, which ſome derive from τοκος, *pretium vel pœna*; ſome from an obſolete Word *feo*, from whence *fœtus* and *fœcundus*. *Uſura*, which was a general word, ſignifying the uſe of any thing, (*Plaut. Prolog. Amphitr. Uſuram corporis ejus capit ſibi,*) came afterwards to be applied to Money.

Intereſt

[e] 1 Chron. xxii. [f] 1 Kings ix. [g] 1 Kings x. [h] 1 Kings ix. [i] 1 Kings x.

Intereſt for Money was forbid amongſt the *Jews*, and by an old Law in *Rome* (call'd the [a] *Lex Geruntia*) likewiſe amongſt the *Romans*. But neither *Romans* nor *Jews* were forbid to take Intereſt from Strangers: but afterwards this Law came to be aboliſhed, or grew inſignificant, as moſt Laws will that limit the price of Money, contrary to the natural courſe of it. The Intereſt of Money, both in *Rome* and *Greece*, was high for a conſiderable time. Simple Intereſt was exacted monthly in both places at the rate of one *per Cent. per* Month. In *Greece* at the New Moon, and in *Rome* at the *Kalends*. [b] *Kalendarium exercere* ſignify'd the ſame thing with *fœnus exercere*. Therefore *Streſiades*, in *Ariſtophanes*, being burden'd with Debt, dreaded ἔνην καὶ νέαν. This Uſury was a *Drachma* upon the *Centum Minæ*, ſomewhat more than twelve *per Cent.* a year, becauſe the Lunations returned oftener than our *Kalendar* Months. The *Romans* paid likewiſe a *Denarius* a Month for 100 *Denarii*: and it is mention'd by [c] *Cicero* as monthly. *Æſchines* in his Oration *Cteſiphon*, ſaith that the *Oritani* paid him a *Drachm* a month till the principal was repaid: this was called ἑκατοστὴ or *centeſima uſura*, one *per Cent.* And becauſe the *As* was reckoned any *Integer*, it was likewiſe called *Aſſes uſuræ*: ſo that *Aſſes uſuræ* and *centeſimæ uſuræ* are the ſame thing. The other Subdiviſions of Intereſt according to the parts of the *As* one may ſee in the Tables. *Livy* and *Tacitus* mention the *fœnus unciarium* and *ſemiunciarium* as high, which according to the proportion of the *As*, being but $\frac{1}{12}$ or $\frac{1}{24}$ in the Month, muſt only make 1 or $\frac{1}{2}$ *per Cent. per annum*. And the Law of the XII Tables forbids, *ne quis unciario fœnore amplius exerceto*. So it is expreſt by *Tacitus*. × Theſe Expreſſions cannot be interpreted according to the Analogy of the Tables, but differ from all the others, and they certainly denote the *centeſima uſura*: but how this way of Expreſſion in theſe two Authors has happened, I can give no Account: It ſeems they put the *Uncia* for the *As* or *Integer*.

The *Centeſima Uſura* was the greateſt Intereſt, which it was not lawful to exceed; and what was paid over it, was reckoned as a Repayment of part of the Principal. But whatever Laws were made

[a] Plin. lib. 35. cap. 7. [b] Seneca de Beneficiis lib. 7. [c] Lib. 3. Epiſt. ult.

× Annal: L. VI. c. 16. Lazy with.

to regulate Intereſt, it was in *Rome* as in all other places, the Value of Money roſe above or fell below the legal Intereſt, according to the Scarcity or Plenty of the Commodity. So that *Semiſſes Uſuræ* or ½ *per Cent. per* month, ſix *per Cent.* a year, which *Pliny* calls *Civilis & modica*, came to be the publick and cuſtomary Intereſt of Money; for the *Aſſes Uſuræ* came to be a grievance, and occaſion'd great tumults among the people: yet ſtill he that took it was not reckoned to tranſgreſs any Law; and there were ſome greedy Uſurers that exacted double, triple, nay four times as much.

The *Seſquicenteſima*, which was 1 ½ *per Cent.* a month, and 18 *per Cent.* a year, was condemned by the *Nicene* Council. It was allowed by the [d] *Athenians* only in the caſe of the Repudiation of a Wife, in which caſe the Husband was obliged to pay nine *Oboli* monthly, till the repayment of her Portion; nine *Oboli* make a *Drachm* and a half.

Cicero, in his *Frumentaria*, accuſeth *Verres* for lending out the Money that was intruſted to him for buying of Grain, at 2 *per Cent.* a month; which ſhews that they muſt have been as great Extortioners as our Pawn-brokers.

There were no laws at firſt to limit the Intereſt upon [e] *Pecunia Trajectitia*, or *Fœnus Nauticum*, the Money that was lent to Maſters of Ships upon *Bottom Maree* or their Goods. Yet even this was reduced by *Juſtinian* the Emperor from 2 to 1 *per Cent.* a month. The reaſon of the high rate of the *Fœnus Nauticum* was the greater risk that the Creditors were ſuppos'd to run.

[f] Money came to be ſo plentiful in *Auguſtus Cæſar*'s time, that it fell from *Centeſima* to *Uſura trientaria*; and *Juſtinian* reduced Intereſt to that rate, *viz.* to 4 *per Cent.* a year. There was alſo *Quadrantes Uſuræ* or ¼ a month, or 3 *per Cent.* a year.

There was, beſides ſimple Intereſt, a ſort of compound Intereſt, which, as we obſerved before, was called by *Tully Anatociſmus*: it was ſometimes reckoned after 100 months, and ſometimes anniverſary

[d] Demoſthenes κατ' Ευεργ. [e] Capite de nautico fœnore. [f] Dio. lib. 51.

verſary. [g] *Ariſtophanes* calls it τόκοι τοκῶν. The reaſon of the Law was that the Creditor could demand his Money and Intereſt at the Term of Payment; but this came much to the ſame thing; for Debtors that were not very able to pay, ſubmitted to add the Intereſt to the Principal for the ſake of Forbearance.

There was an Intereſt allow'd among the *Romans* for what they called the *Species Crediti*, as Corn, Wine, Oil, *&c.* which was ſettled by *Conſtantine* at a third part, that is, where two *Modii* were lent, the Debtor was obliged to pay three, in caſe no other Bargain was made. The reaſon of this was the Variableneſs of the price of thoſe Commodities.

A monthly Intereſt is higher than an annual one of the ſame rate, becauſe it operates by compound intereſt. This ſuggeſts to me the following Problem.

The rate of Intereſt *per annum* being given, to find the greateſt Sum which is to be made of one Pound, ſuppoſing the Intereſt payable every indiviſible moment of time.

Let r be the Intereſt of one Pound *per annum*, and let t denote any part of time with reſpect to the whole Year: the ſimple Intereſt due for that time will be rt. Now if the Intereſt be payable at the end of every ſuch time equal to t, the whole Sum at the end of the year, reckoning compound Intereſt, will amount to $\overline{1+rt}|^{\frac{1}{t}}$. But by *Newton*'s Theorem we have

$$\overline{1+rt}|^{\frac{1}{t}} = 1+r+\frac{1-t}{2}r^2+\frac{1-3t+2tt}{6}r^3+\frac{1-6t+11t^2-6t^3}{24}r^4+\&c.$$

And by ſuppoſition t denotes an indiviſible Moment of time, and therefore it is equal to nothing: in which caſe the former Value of $\overline{1+rt}|^{\frac{1}{t}}$ becomes

$$1+r+\tfrac{1}{2}r^2+\tfrac{1}{6}r^3+\tfrac{1}{24}r^4+\tfrac{1}{120}r^5+\&c. \text{ or}$$
$$1+Ar+\tfrac{1}{2}Br+\tfrac{1}{3}Cr+\tfrac{1}{4}Dr+\tfrac{1}{5}Er+\&c.$$

[g] In Nebulis. Tull. lib. 5. Epiſt. ad Att. Interim cum ego in edicto tralatitio centeſimis me obſervaturum haberem cum Anatociſmo anniverſario, ille ex ſyngrapha poſtulabat quaternas.

For Inſtance, ſuppoſe one Pound pay every Moment at the rate of *6 per Cent. per annum*, then is $r = ,06$; which ſubſtituted in the *Series* gives the Terms as in the Margin, whoſe Sum is 1,06183654 equal to the Value of 1 Pound with it's Intereſt at the End of the Year. And as 1 is to this Number, ſo is any other Sum let out to Intereſt, to that Sum which it amounts to at the End of the Year. For if the Sum let out be 10.000000 *l.* it will be found to amount to 10,618365,4 *l.* that is 10.618365 *l.* 8 *s.*

1,00000000
6000000
180000
3600
54
1,06183654

This Problem is likewiſe ſolv'd by a Table of Logarithms, as follows,

Multiply *r* into ,43429448... *&c. viz.* the Reciprocal of the Hyperbolick *Logarithm* of 10; and the Product will be the Logarithm of the Number requir'd, which will be found by the common Tables.

High rates of Intereſt are an Indication of the Scarcity of Money; but this Reaſon will not operate ſo ſtrongly in the caſe of the *Roman* Citizens, as it would in other Cities of *Europe* at this Day. For,

1. It is plain there was a great deal of Credit at *Rome*, where great Men could run in debt ſuch vaſt Sums, as appear in the Chapter of Debts and Eſtates, even as far as half a Million without any other viſible fund but their perſonal Merit, and hopes of preferment in the Commonwealth.

2. The Uſurers or Money-changers being a ſort of a ſcandalous employment at *Rome*, is another reaſon for the high rate of Intereſt. For where a Trade or Profeſſion is exerciſed clandeſtinely, and not in a legal manner, it muſt be exerciſed with more Fraud and Extortion; and indeed thoſe money *Scriveners* ſeem to have been little better than our *Pawn-brokers*.

3. The *Romans* do not ſeem to have known the ſecret of Paper Credit, and Securities upon Mortgages, as far as I know, or at leaſt to the degree it is practiſed now-a-days, which makes as it were a Multiplication of the *Species* of Money.

4 The

4. The *Ambitus* was the great Trade of *Rome*, and demanded a conſtant Supply of great Sums of Money. **Tully* aſſigns this reaſon for the high rate of Intereſt, and tells us that it had brought it from 4 *per Cent.* to 8. Bribery was come to the height of 80729 *l. per* Tribe, at the leaſt the Majority of them, ſuch as had the caſting Votes. And there being no leſs than thirty five Tribes, it is eaſy to gueſs how expenſive this Corruption was grown, and every body knows where it ended at laſt. This hath been hinted in a former Chapter.

* Cicero Epiſt. 2. ad Q. Fratrem. Ambitus rediit immanis, nunquam fuit par, non dico Hyperbolas, vel Seſtertium Centies conſtituunt in prærogativum pronunciare. —— Ardet Ambitus fœnus ex triente, Idibus Quinctilis factum erat beſſibus.

A DISSERTATION

Concerning the NAVIGATION *of the Ancients.*

THE Conſideration of the Riches of the Ancients leads us naturally to that of their Trade; and there it is no leſs obvious to enquire into the Bulk and Tunage of their Shipping: but I imagin'd that Calculations of this kind would ſeem dry and incoherent without a general Diſcourſe on the Subject to which they related. I choſe therefore to compile a compendious Hiſtory of the Navigation of the Ancients, having the Aſſiſtance of the learned M. *Huet*'s Treaty on their Commerce. The nature of my Undertaking confined me to Brevity in this, as in the other Diſſertations; and yet I believe there are very few material things omitted.

Ships were at firſt called *Rates* in the *Roman* Language from their Texture, *Ex ratibus vimine contextis.* The Ancients, ſaith [a] *Iſidorus*, join'd together pieces of Timber, and covered them with Planks, which were their firſt Ships. If we had not improv'd the Inventions of our Predeceſſors, ſaith [b] *Quintilian*, we ſhould be ſtill ſailing *in Ratibus*, in Rafts or Floats. The *Monoxyla* or Boats made of one hollowed piece of Timber, were ſtill an improvement

[a] Iſidor. 19. 1. [b] Quint. 10. 2

ment the upon *Rates*. They were uſed in very early times, and particularly by the *Indians* in oppoſing the Invaſion of *Semiramis*. [c] *Xenophon* mentions them as capable of holding only three Men. [d] *Polyænus* as carrying only one; they are uſed in *Greece* at this Day. M. *Spon* tells us in his Book of Travels, that he was carryed in one; he adds that they were fifteen or twenty feet long, a foot and a half broad, and as much in depth; that he ſaw two Horſes carried over in one of them. According to what is mention'd by [e] *Sidonius Apollinaris*:

——— *Pars lintre cavata*
Jam dociles exponit equos.

[f] *Pliny* ſays, that *German* Pyrates uſed them, ſome being capacious enough to carry thirty Men. They were in uſe among the *Gauls*, as [g] *Livy* relates; and among the *Hiſpani*, according to [h] *Strabo*. They were called by the *Romans Alvei*.

There were likewiſe Boats covered with Leather, us'd particularly by the *Britons*. *Carinæ primum*, ſaith *Cæſar*, *ac ſtatumina ex levi materia fiunt, reliquum corpus viminibus contextum coriis integitur*. Theſe were called by the *Greeks* Δερματινὰ Πλοῖα, particularly by *Xiphilinus*: they are uſed in *Wales*, and amongſt the *Tartars*, at this Day.

The moſt brittle Water-carriage was uſed among the *Ægyptians*, who, as [i] *Strabo* ſaith, would ſail ſometimes in Boats made of Earthen-ware.

——— *Imbelle & inutile vulgus*
Parvula fictilibus ſolitum dare vela faſelis,
Et brevibus pictæ remis incumbere teſtæ. Juv. Sat. 15.

The *Ægyptians* made Boats of the *Papyrus*, a Plant of which writing paper was made till the ninth or tenth Age, and from whence it ſtill retains its Name.

Plutarch

[c] Xenoph. lib. 6. Hiſt. Græc. [d] Lib. 5. [e] Sidon. Apollinar. in Panegyricis. [f] Lib. 16. cap. 41. [g] Lib. 21. D. 26. [h] Lib. 2. [i] Lib. 17.

Plutarch relates it as a common opinion, that Crocodiles would not hurt ſuch as were carry'd in thoſe Paper Boats, becauſe *Iſis* once ſail'd in one of them.

What appears ſtill more incredible, the *Indians* made Boats of hollow Canes. [k] *Heliodorus* ſaith they ſplit a Cane in two, and made a Boat of each part. [l] *Pliny* tells you they were big enough to carry three Men.

The common Materials which the Ancients made their Ships of, were the *Ornus*, or the wild *Aſh*; the *Ilex*, or ever-green *Oak*; the *Beech*; and the *Alder*. The *Fir* was likewiſe uſed for this purpoſe, *Lucan lib.* 3.

Occumbunt Orni, nodoſa impellitur Ilex,
Silvaque Dodones, & fluctibus aptior Alnus. ×

[m] *Pliny* tells us that in *Egypt* and *Syria* the Kings were forced to build their Ships of Cedar for want of Fir.

The *Romans* made uſe of Fir, with which their Foreſts ſupply'd them plentifully.

[n] *Ptolomy* promiſed the *Rhodians* Timber for building of ten *Quinquiremes*, and as many *Triremes*, and ſome of forty Cubits long.

They joined their Timbers with Iron. *Vegetius* ſaith that ſuch as would be at the Expence uſed Braſs, becauſe it did not ruſt. *Hiero* made uſe of that Metal in the building of his great Ship. They filled up the Interſtices of their Planks with Hemp and Pitch; and ſometimes with a ſort of *Juncus* or Ruſh called *Spartum*.

We ſhall have occaſion to diſcourſe of the Bulk of their Veſſels, and the different ſorts of them, in the following part of this ſhort Hiſtory.

It is probable that, even before the Deluge, Mankind, who had attained to great Perfection in other Arts, muſt have uſed ſome ſort of Machines, made of the Materials above mentioned, to paſs Rivers and Gulphs for the conveniency of mutual intercourſe.

After

[k] Heliod. 10. 27. [l] Plin. lib. 8. [m] 16. 41. [n] Polybius lib. 5.

× These Verses are nothing to the Author's purpose, for the Fir is not mentioned. He had better have quoted Virgil, who Lucan poorly imitates. Procumbunt Piceæ, sonat icta securibus Languith.
Ilex.

After the Deluge the condition of mankind made this commerce more neceſſary, and the Iſlands could not be peopled without Tranſport by Shipping. The *Ægyptians* and *Phœnicians* were undoubtedly the firſt People who cultivated the Art of Navigation.

The *Ægyptians* at firſt navigated the Red Sea by the permiſſion of the *Idumæans* who were Maſters of it. (It is believed the *Idumæan* King *Erythras* was the ſame with *Edom* or *Eſau*.) But the *Ægyptians* ſoon emancipated themſelves from that dependance.

[o] *Oſiris*, or, as the *Greeks* call him, *Dionyſus*, the *Bacchus* of the Ancients, is reported to have civilized the *Indians* and reigned amongſt them 52 Years, planting Colonies and building Cities, *A. M.* 2422. upon which *Seſothis* or *Seſoſtris*, King of *Egypt*, founded his pretenſions to the *Indies*, and after having conquered the *Ethiopians*, with a Navy of four hundred Ships ſent into the Red Sea, ſubdued all the maritime coaſts as far as *India* [p]; he himſelf in the mean while extending his Conqueſts, by Land, farther than *Alexander* did, beyond the *Ganges*, and as far as the Ocean. This Correſpondence between the *Egyptians* and *Indians* continued for many Years, inſomuch that when *Cambyſes* invaded *Ægypt*, the *Indies* were the Refuge of many of the *Egyptians*. The learned *M. Huet* is of opinion, that the conformity of the Cuſtoms and Manners of the two Nations is a Token of this ancient Alliance. Particularly, the *Chineſe* making uſe of *Hieroglyphicks* as the *Ægyptians* do, their holding the Doctrine of the *Metempſychoſis*, their Worſhip of a Cow, and their Averſion from receiving foreign Merchants into their Country, which, as [q] *Strabo* relates, was the Temper of the ancient *Ægyptians*.

The *Indians* were not ignorant of Navigation before the Invaſion of the *Ægyptians*; for, perhaps an hundred years before the Expedition of *Seſoſtris*, according to the imperfect Chronology of that time, they maintained a War againſt *Semiramis*, in which they had four thouſand *Monoxyla* or *Canoes* of one piece of Timber, on the River *Indus*; ſuch a People muſt have had ſome Experience of Navigation upon the Ocean.

o Diodor. Sicul. lib. 1. p Manetho apud Joſephum lib. 1. contra Apionem. q Lib. 17.

It plainly appears that the *Ægyptians* practiſed this Navigation very early; therefore when [1] *Strabo* tells us that *Ptolomy Philadelphus* was the firſt who opened the Navigation of *Ægypt* to the *Indies*, it muſt be underſtood of the Princes of *Greek* Extraction; for during the Empire of the *Perſians*, who had no occaſion for the *Ægyptian* Ports to carry on their *Indian* Trade, the Commerce of the *Ægyptians* with the *Indies* had been ſo much interrupted, that the *Indian* Seas were believed to be unnavigable.

The *Phœnicians* were, next to the *Ægyptians*, the moſt ancient Navigators; they inhabited the maritime Coaſts of *Syria*, bordering on *Paleſtine*: their Country is properly called *Phœnice*, not *Phœnicia*; *Phœnicen illuſtravere Phœnices*, ſaith *Pomponius Mela*, *ſolers hominum genus, & ad belli paciſque munia eximium, literas, & literarum operas, aliaſque etiam artes, maria navibus adire, claſſe confligere, imperitare gentibus, regnum præliumque commenti*; a great Character indeed, to be skilled in Arts and Sciences, addicted to Navigation and Commerce, powerful and valiant to maintain the Empire of the Seas.

The Commerce of the *Phœnicians* lying more towards the Weſt than that of the *Ægyptians*, was the occaſion of their being celebrated by ancient Authors as the Inventors of Aſtronomy and Navigation. When *Pliny* names the *Pœni* as Inventors of Navigation, it muſt not be underſtood of the *Carthaginians*, but of the *Phœnicians*, from whom the *Carthaginians* were deſcended. They navigated into the Ocean by the Straits of *Gibraltar*, eſtabliſhed many Colonies; *Thebes* in *Bœotia*, *Cadiz*, and *Carthage* it ſelf, which was built fifty Years before the Deſtruction of *Troy*. It was under the Conduct of the *Phœnicians* that *Solomon*'s Fleets ſailed to *Ophir* and *Tharſis* from the Ports of *Ailath* and *Eſiongaber* on the Red Sea. *Ophir* was the general name of the Eaſtern coaſt of *Africa*, and *Tharſis* that of the Weſtern coaſt both of *Africa* and *Spain*. This Commerce *Jehoſaphat*, King of *Judah*, endeavoured to renew, but his Enterpriſe was blaſted by the Deſtruction of his Veſſels in the Harbour. The Character which *Joſephus* (in his Book againſt

[1] Lib. 3.

againſt *Appion*) gives his Countrymen is pretty true; that being a Mediterranean People, they contented themſelves with Husbandry, and did not meddle with Trade; accordingly the *Jews* manned their Ships with the Inhabitants of the maritime Ports of the Country, of which they poſſeſſed chiefly the inland places. *Joppa* is the moſt famous Port mentioned in the Scriptures. It is paſt doubt that the Cape of *Good Hope* was doubled in thoſe early times; and that the *Portugueſe* were not the firſt Diſcoverers of that Navigation.

The *Phœnicians*, of all the Ancients, reſembled moſt the *Dutch*, their Country being narrow, low and boggy, and by great Induſtry and Expences defended from the Sea. Thoſe inconveniencies were ballanced by the Number and Goodneſs of their Harbours, amongſt which the chief was antient *Tyre*[s], at firſt built upon the Continent, and fortified ſo well, that it was able to repel the great Army of *Salmanazar*[t], and ſuffer thirteen Years Siege by that of *Nebuchadonozor*, the Hardſhips of which induced the Inhabitants afterwards to tranſport themſelves and their effects into a neighbouring Iſland, where they built a new *Tyre*, far ſurpaſſing the other in Splendor and Wealth. This *Tyre* continued untill the time of *Alexander* the Great, who took it and ſack'd it after a moſt barbarous manner, and by eſtabliſhing the ſtaple at *Alexandria* in *Ægypt*, made one of the greateſt Revolutions in Trade that ever was known.

The *Greeks*, in their Liſts of ſuch as have been Maſters of the *Mediterranean*, give the ſeventh place to the *Phœnicians*, and the eighth to the *Ægyptians*; but they were always reproached by the *Ægyptians* as Novices in Antiquity. For the *Phœnicians* were much older Sailers than the *Greeks*: the naval Expedition of their *Hercules* mentioned by *Sanchoniathon* under the Name of *Malcanthus*, being three hundred Years before that of *Jaſon*.

Perſia is commodiouſly ſituated for Trade both by Sea and Land; it has on the Southſide of it the *Indian* and *Arabian* Seas, and *Perſian* Gulph; towards the North the *Caſpian* and *Euxine*; beſides

[s] A. M. 2747. Joſeph. Antiquitat.
[t] *Above the Age of the World* 3400. Vid. Philoſtrat. *Hiſtory of* Phœnicia *and* India.

the Advantage of great navigable Rivers, ſuch as the *Euphrates* and *Tigris:* notwithſtanding all which natural Conveniencies they never diſcovered any great genius for Trade and Navigation. [u] *Semiramis*, who reign'd in that Country, made a great Figure at Sea, and was ſuppoſed to have invented Gallies, of which ſhe is reported to have had no leſs at a time than three thouſand with brazen *Roſtra*; but her Fleet was not man'd with the Natives of the Coun-
A. M. 3273. try. *Salmanaſar*, one of her Succeſſors, man'd his Fleet with his *Phœnician* Subjects, but it was ſo ill conducted, that the *Tyrians* deſtroy'd it with leſs than ten Ships. The Fleets which *Darius* and *Xerxes* [x] rigged out againſt the *Athenians*, were built and man'd by their Tributaries and Allies, who dwelt in the Coaſts and Iſlands of the *Mediterranean:* We have a Liſt of *Xerxes*'s Fleet [y] conſiſting of 1207 *Triremes*, tranſmitted to us by ſuch as write the Hiſtory of that War, *Phœnician* and *Syrian* Ships 300, *Ægyptian* 200, *Cyprian* 150, *Cicilian* 100, *Pamphylian* 30, *Lycian* 50, *Carian* 70, *Ionian* 70, *Iſlanders* 17, *Æolian* 60, *Helleſpontian* 100; beſides theſe there were leſſer Ships of thirty and fifty Oars, furniſhed by the *Cercurians* and *Hippagines*, which made up the Number. In all this Liſt there is no mention made of the *Perſians*.

After the Victory that *Cimon* [z] the *Athenian* Admiral obtained over the Fleet of *Artaxerxes Longimanus*, the *Perſians* had renounced all Pretenſions to the *Grecian* Seas, obliging themſelves not to approach them within three days ſail; nor to ſend any man of war into the *Lycian* Sea (on the Coaſt of *Aſia Minor* over againſt *Rhodes*) or *Pamphylian* Sea (between the Continent and *Cyprus*) towards the South; or the *Euxine* Sea towards the North. Nothing could be a greater indication of a genius quite oppoſite to naval Skill and Commerce than ſuch an unſucceſsful War and diſhonourable Treaty, unleſs it was their interrupting the Navigation of their great Rivers, *Euphrates* and *Tygris*, by Cataracts, to hinder the Invaſion of foreign Nations. [a] *Strabo* takes notice of them, telling us, that before they were made, the *Tygris* was navigable as far as the

[u] Herodot. lib. 1.
[x] *About* Olympiad 75. A. M. 3525.
[y] Herodot.
[z] Vid. Diodor. ad Olympiad. 82. Ann. 4.
[a] Lib. 16.

the Ground where *Seleucia*[b] afterwards ſtood, and the *Euphrates* as far as *Babylon*[c]. *Alexander*, conformably to his uſual genius, broke down thoſe Caſcades, and opened the Navigation of the Rivers; but in proceſs of time the ſame vile ſpirit prevailed, and they were ſet up[d], and ſubſiſted in the time of the Emperor *Juſtinian*. They were ſince demoliſhed a ſecond time, and a great Trade carried on by the Rivers, the moſt famous Staples of which were *Siraf* on the *Perſian* Gulph, and *Omana*, of which[e] *Pliny* ſpeaks as a Place of great Trade, and different from a City of the ſame Name in *Arabia*.

Alexander made himſelf Maſter of the *Indian* Sea, and deſtroyed the Fleet which he had on the *Mediterranean*, to take from his Soldiers the Hopes of a Retreat, or rather to ſave charges; but to ſhew how little he conſidered the Sea-craft of the *Perſians*, he employed none of that Country in his Fleet, but man'd it with *Carians*, *Phœnicians* and *Cyprians*. His great Projects calling him elſewhere, he gave Charge of a naval Expedition to *Nearchus*, who ſail'd out by the *Indus*, and returned to *Perſia* by the *Paſitygris*[f]. The Succeſſors of *Alexander*, *Ptolomy Philadelphus*, *Antigonus* and *Seleucus* ſignaliz'd themſelves as much at Sea as at Land, of whoſe naval forces we ſhall ſpeak afterwards. No *Perſian* Monarch ever made a greater Figure at Sea than *Mithridates*, who diſputed the Empire of the *Mediterranean* with the *Romans*, made himſelf Maſter of it from the *Cilician* to the *Ionian*[g] Sea; and to repreſs the *Roman* naval Power, and interrupt their Trade, fill'd the whole *Mediterranean* with Pyrates as far as the Straits of *Gibraltar*.

Tho' the *Perſians* had no great genius for Traffick by Sea, they had a very great Commerce by Land; and the antient *Arſacia*, the Seat of ſome of the *Perſian* Kings, the ſame with the preſent *Caſwin*, grew potent and very rich by its inland Trade. The *Caſpian* and *Euxine* Seas furniſhed the *Armenians* with the Goods which they carried

[b] *This was the* Seleucia Parthorum *in* Meſopotamia, *not far diſtant from* Babylon, *at the Confluence of the* Tygris *and* Euphrates.

[c] Bagdat *does not ſtand where antient* Babylon *was*; *for it is ſeated upon the* Tygris, *whereas* Babylon *was upon the* Euphrates. Babylonia *is now called* Caldar.

[d] Ammian Marcellin. lib. 24. [e] Lib. 36. cap. 28. [f] *The lower part of the* Tygris.

[g] *All the Sea between* Sicily, Italy *and* Greece *is called the* Ionian *Sea, of which the* Adriatick, *ſpeaking properly, is but a part.*

carried into *Perſia*; and the Trade of *China* and *India*: they deſcended into the *Caſpian* Sea by the [h] *Oxus*, and remounted again by the *Cyrus* [i] near the *Euxine*, from whence they were tranſported to the *European* Countries: *Paul Centurion* a *Genoeſe* endeavoured to recover that Trade in the time of Pope *Leo* X. and propoſed to *Baſil*, Czar of *Muſcovy*, to tranſport *Indian* Goods to *Aſtracan*, and from thence up the *Wolga* to *Muſcow*, and to *Riga* by the Rivers of *Moſca* and *Duna*. Duke *Frederick* of *Holſtein* went unſucceſsfully about the ſame Project.

The *Trojans* were another *Aſiatick* Nation powerful at Sea. Their Empire began about the Year of the World 2530. Their Situation on the *Aſiatick* ſide of the *Helleſpont* was the moſt commodious for Trade and Navigation of any in the World, and raiſed them to a great height of Splendor and Riches in a little time. But their Empire ſubſiſted only about an hundred and forty years, being deſtroyed by the *Greeks*.

We come now to the Navigation and Commerce of the *Carthaginians*. *Carthage* was founded or rather rebuilt by *Dido* about *A. M.* 3132. and peopled with a Colony of the *Tyrians* or *Phœnicians*; ſo that, as we hinted before, when the *Pœni* are ſaid to be the Inventors of Navigation, it is to be underſtood of the *Phœnicians*. *Horace* calls the *Carthaginians* and *Tyrians uterque Pœnus*, [l] *Cicero* calls the Inhabitants of *Cadiz*, *Pœni*. The *Carthaginians* retain'd all the Cunning and Induſtry of the People from whom they were deſcended. [m] In the Scriptures the *Tyrians* are commended for their Skill in Carpenter's work, and all other Arts relating to Architecture, they being employ'd by *Solomon* in building the Temple.

The *Carthaginians* were always famous for dreſſing of Leather, an Art which the *Maroquines*, Inhabitants of the ſame Country, poſſeſs to this Day. They were much jeſted upon by the *Romans*, and call'd Porridge Eaters, for their Parſimony, being a Reproach they were not aſhamed of, but in return made as great a jeſt of the *Romans* for their ſcarcity of Plate, in one of their firſt Embaſſies, as we obſerved before. The City of *Carthage*, at the beginning of the

[h] *Upon this River* Alexander *built a Town, called* Alexandria Oxiana.
[i] Cyrus, *now called* Kur, *it runs through the Country of* Mohan.
[k] Appian. Hiſtor. Bell. Punic.
[l] Cicero pro Balbo.
[m] 1 Kings v. 6.

the third *Punick* War had 700000 Inhabitants. It was once Mistress of three hundred Cities, possessed all that Tract of Land from the Straits of *Gibraltar* to the greater *Syria*,× besides a great Extent of Territories without the Straits on the Coast of *Africk*, (where *Hanno* established many Colonies) and a part of *Spain*, particularly the magnificent City of *Carthagena*, which they built: besides the Island in the Ocean far beyond the Straits of *Cadiz*, of which the Author of the Book of Wonders, attributed to *Aristotle*, and likewise *Diodorus Siculus*, makes such a Description, that many have been induced to believe it was *America*. The Objection of *Bochart*[n], that such a Navigation could not be perform'd without the Compass, is so far of no force, that *Diodorus* tells you they were carried there by a gust of Wind, probably the Trade Wind, which reigns between the Tropicks. So far is true, that the Senate of *Carthage* kept this Discovery of the *Fortunate Island* a great Secret, and forbad their People to transport themselves thither, for fear of dispeopling the Country.

Time has destroy'd two noble Journals of their Navigation, that of *Hanno* along the Coast of *Africk* without the Straits, and the other of *Hamilcar* along the Coasts of *Europe*: The *Periplus*, which is now attributed to *Hanno*, being supposed to be spurious. We shall have occasion to speak of the naval Affairs of this great People, as they interfered with those of the *Romans*.

°The *Greeks*, so call'd at first from some very obscure Burrough or Prince, a Name which they changed for that of *Hellenes* or *Achaians*, were the Descendants of Savages, ignorant of Agriculture, and browzing on Herbage like Cattle[p]; witness the divine Honours that they paid to *Pelasgus*, who first taught them to feed on Acorns. Their own Countryman *Thucydides* tells us, that when they were a little got out of their former miserable condition, they robbed at land, and pyrated at Sea.]

By the *Greeks* may be understood, not only the Inhabitants of that part of the Continent called *Greece*, but those of the Islands of the *Mediterranean*, and the Coast of *Asia Minor* where they sent

[n] Lib. 5. [o] Plin. lib. 4. cap. 7. [p] Apollodor. lib. 2. cap. 1.

× Read Syrtis. Languith.

ſent Colonies, without excluding the *Sicilians* and the *Tyrrhenians*, and ſeveral of the Inhabitants of *Italy*. *Minos*, King of *Crete*, was the firſt Man that civiliz'd this Nation; he rig'd out a Fleet, and made himſelf Maſter of the *Archipelago* and it's Iſlands, leaving his Children Governors of the Countries he had ſubdued. After this the *Greeks* began to build Towns on the Sea Coaſts. The Kingdom of *Argos*[q] was founded by *Inachus*, according to common Chronology *A. M.* 1249. ſix hundred and ſeventy ſix years before the Deſtruction of *Troy*. The Expedition of the *Argonauts* happened *A. M.* 2743. (which account I ſet down only as conjectural, till the perfect one, which the World ſo much longs for, doth appear) it was partly mercantile, partly military. The Myſtery of the golden Fleece is variouſly explain'd, either of the Profit of the Wool Trade of *Colchis*, or of the Gold that they commonly gather'd with Fleeces in the Rivers. The Ship *Argo*, in which they ſail'd, was perhaps larger and better equip'd than any that had been before, but could not be of extraordinary ſize, ſince the *Argonauts* were able to carry it on their Backs from the *Danube* to the *Adriatick* Sea.

The next remarkable Expedition of the *Greeks* was againſt
A. M. 2821. *Troy*.

Thucydides does not allow the poetical Liſt of Ships in that Expedition; beſides, as he ſaith, moſt of them were open Boats, and the Soldiers were the Rowers.

After the *Trojan* War the *Greeks* applied themſelves with great diligence to naval Affairs. *Thucydides* gives the preference in Antiquity to the *Corinthians*, who were the Inventors of *Triremes*. After them the *Ionians* ſucceeded to the Empire of thoſe Seas, and were able to maintain it againſt *Cyrus* and his Son *Cambyſes*.

[s] The *Phocæ*, who were the Founders of *Marſeilles*, were able to deal with the *Carthaginians*. In all thoſe Wars there were few *Triremes*,

[q] Argos *the City is now call'd* Argo, *a very obſcure Village in the* Morea.

[r] *The Ruins of* Troy *are pretended to be ſhewn at this Day in* Aſia Minor *before you enter the* Helleſpont.

[s] Phocæa *is now call'd* Foia Vecchia, *not far from* Smyrna *in* Aſia Minor.

Triremes, moſt of them being of one Tire of Oars of fifty Banks. But the Tyrants of *Sicily*, *Gelon* and *Hieron*, and the Inhabitants of *Corfu* augmenting the number of their *Triremes*, obliged other States to do ſo likewiſe.

Thucydides owns that in thoſe early times the *Athenians* and [t] *Eginetes* made no great Figure at Sea, their Ships being only of one Tire of fifty Oars; and this even when they put their chief Confidence in their Fleet in their War with *Xerxes*. Yet *Xenophon* (*De Provent.*) who wrote ſhortly after *Thucydides*, makes *Athens* a City of great Trade.

The Conduct of *Sparta* in this particular ſeem'd to be unaccountable; for they diſcourag'd Trade, and yet were very ambitious of maritime Power. *Pauſanias* acquaints us, that before the Reign of *Polydorus*, King of *Lacedæmon*, Commerce was carried on without Species of Gold or Silver, only by the Exchange of Commodities. *Trogus* pretends, that this was rather from a principle of Virtue than Ignorance, and that *Lycurgus* had forbid the uſe of Silver and Gold Coin, from a prudent foreſight of their miſchievous Effects. It is here to be obſerved, that the famous Games inſtituted in the ſeveral Cities of *Greece* were partly for Trade, as well as for the Encouragement of manly Exerciſes, being ſomewhat of the nature of the *European* great Fairs.

It is with great Aſſurance that the ſeveral Cities of *Greece* diſpute the Invention of different ſorts of Ships, when the *Phœnician* and *Ægyptian* Veſſels, from whom undoubtedly they had their Models, were daily to be ſeen in their Harbours. They have indeed one thing which they may claim as an Improvement of the *Phœnician* Navigation; for the *Phœnicians* conducted their Ships by the *Little Bear*, and they by the *Great Bear*. But their Navigation was ſtill confin'd to the *Mediterranean*, till about ſix hundred years after the Expedition of the *Argonauts*, when *Cælus* of *Samos* ſail'd out of the Straits of *Gibraltar* as far as the City of *Tarteſſus*, at the Mouth of the *Bætis*, now *Quadalquiver* (an *Arabick* Word) not far from the ſaid Straits.

[t] *Inhabitants of a little Iſland over-againſt* Athens; *it is now call'd* Engia.

* *Polycrates*, Tyrant of *Samos*, taught the *Samians* their Arts, and carried their naval Power to a great height. He had an hundred *Biremes*, which were bigger than the *Grecian* Ships of his time.

After the *Trojan* Expedition, Commerce flouriſh'd among the *Greeks*. *Solon* himſelf, as *Plutarch* relates of him, repair'd his Fortune by Trade, which had been ruin'd by his Father's too great Generoſity. There is a remarkable Paſſage in *Plutarch* on this occaſion to the honour of Trade. " In thoſe times (ſaith he) as *Heſiod* re- " lates, no Labour or Profeſſion was ſhameful, Trade made no " Difference amongſt Mankind. Traffick was in great Eſteem, " procuring honourable Alliances, and Knowledge of many things. " Merchants have founded great Cities, as he who built *Marſeils*, " and was ſo well receiv'd by the *Gauls*. *Thales* is reported to " have merchandiz'd, *Hippocrates* the Mathematician, and even " *Plato*, whoſe principal Aim in his *Ægyptian* Voyage was to ſell " his Oyl.

Caſtor the *Rhodian*, cotemporary with *Auguſtus*, compos'd a Hiſtory of ſuch as had been poſſeſs'd of the Empire of the *Mediterranean* Sea from *Minos* down to the *Æginetæ*, for the ſpace of four hundred Years. From this Author *Euſebius* took the Liſt of his Chronicle.

The *Lydians*[a] inhabiting the Country near *Smyrna* in *Aſia Minor*, firſt in that Liſt, were the Inventors of Money, the principal inſtrument of Commerce.

The *Pelaſgi*, ſo call'd from *Pelaſgus* the Brother of *Hermogynes*, were antient and great Navigators; they firſt inhabited *Arcadia*, but peopled the Iſland of *Lesbos*, which from them was call'd *Pelaſgia*. The *Pelaſgi* built *Spina* at the mouth of the *Po*, which held the Empire of the neighbouring Seas till it was ruin'd by the Barbarians. The *Tyrrhenians* were their Neighbours, whoſe principal City was *Luna*, a good Harbour.

Of all trading Nations, none acquir'd a greater Reputation than the *Rhodians*; being conſtituted by the *Romans* as the ſovereign Judges

* *About* Olympiad 63.

[a] Herodot. lib. 3.

Judges of all Controverſies relating to Commerce; and their Laws are appealed to, even at this Day.

The *Phoceans* founded the City of *Marſeills*, which made a great figure at Sea. The *Maſſilians* ſent Veſſels into the Ocean, Southward under the Conduct of *Euthymene*, and Northward along the *European* Coaſt under the Conduct of *Pythias*.

About a hundred years before the time of *Alexander* the Great, the *Athenians* and *Lacedæmonians* diſputed the Empire of the Seas. Afterwards aroſe *Philip* King of *Macedon*, who endeavour'd to wreſt it from them both: His Pretence for making War upon his Neighbours was their Pyracies: tho' when he wanted Money he practiſed the ſame Trade; particularly when he was ſtraitned in his Financies at the Siege of *Byzantium*.

The *Greeks* all this while maintain'd their Commerce with the *Ægyptians*, their Inſtructors in the Art of Navigation. *Amaſis*, King of *Egypt*, aſſigned them *Neucratis* for their Staple Port.

Before we ſpeak of the great Revolution in Trade, which happen'd by the Deſtruction of *Tyre* by *Alexander* the Great, it will be neceſſary to ſay ſomething of the Trade of the *Arabians* and *Ethiopians*.

Before the *Ægyptians* traded to the *Indies*, their principal Commerce was with the *Arabians*. *Arabia Fœlix* (the Name of the Country as well as principal Port) was the Magazine of both the *Ægyptian* and *Indian* Commodities. This Harbour was afterwards called *Portus Romanus*. The Country was likewiſe call'd *Aden* by an *Hebrew* Name, ſignifying *Happineſs* or *Delight*, abounding in all the rich Commodities of the World.

The Trade to *Arabia Fœlix*, according to *Pliny*, coſt the *Romans* yearly about 807291 *l.* It was advantageouſly ſituated, there being an eaſy paſſage from it to *Ægypt*, *Ethiopia*, *Perſia* and *India* by Sea; and to *Phœnicia*, *Syria* and *Meſopotamia* by land.

The Country of the *Ethiopians* (by which may be underſtood all that tract of Land in the South of *Africk* from the Tropick of *Cancer* to the Ocean) abounded with ſeveral precious Commodities, as Silver, Gold, Ivory, ſome precious Stones, and

the Wood *Algummim.* Thoſe Commodities were likewiſe brought to *Arabia Fœlix.*

From theſe Conſiderations it will follow, that a Place, which had an eaſy Communication with the *Sinus Arabicus,* or the Red Sea, *Ægypt* itſelf, *Ethiopia,* and likewiſe the *Mediterranean,* was a proper Staple for all the Trade of the World: therefore it was a very natural Thought in *Alexander* the Great, after the Deſtruction of *Tyre,* to eſtabliſh the Seat of Trade at *Alexandria,* his Name-ſake and favourite City, which had all thoſe Advantages: beſides he was induced to this in revenge to the *Carthaginians,* hoping that *Alexandria,* being ſituated between *Tyre* and *Carthage,* might get the Trade from them both; tho' at the ſame time he took care to eſtabliſh a Colony of his own people at *Tyre.* *Alexandria* had the Iſland of *Pharos* before it, and the Lake *Mareotis* behind it, which communicated with the *Nile.* It ſoon grew an eye-ſore to the *Carthaginians.*

Another mark of *Alexander's* great Conſideration of Trade, was making Harbours at the Mouth of the River *Indus,* which he did by the Advice of ſome *Phœnicians.* He had undertaken a new Sea Expedition from the *Phalocapas,* a Branch of the *Euphrates,* to viſit the Coaſts of *Arabia Fœlix,* where he reſolved to eſtabliſh the Seat of his Empire. He intended to ſail round the Cape of *Good Hope,* but all thoſe great Projects were prevented by Death. During the laſt two Years of his Life, he had opened again the Trade between *Ægypt* and the *Indies:* ſo natural was it for a Prince, who had propoſed to himſelf the Empire of the World, not to neglect the Sea, the half of his Dominion.

His Succeſſors purſued the Steps of their great Maſter in this particular. The *Ptolomies* in *Ægypt* applied themſelves diligently to Commerce. * *Ptolomy Philadelphus,* a Prince of an infirm Conſtitution, but of a noble Spirit, open'd the Water-carriage from *Alexandria* to the *Indies,* by eſtabliſhing Staples on the Canals of the *Nile,* quite to the *Red Sea.* Of his Fleet, and particularly of two Ships of extraordinary Bulk, we ſhall have occaſion to

* *About* Olympiad 125.

ſpeak

ſpeak afterwards. *Alexander* had left *Grecian* Governors and Colonies in the *Indies*, but they were almoſt exterminated by *Sandrocottus*; *Seleucus* recovered the Sovereignty in ſome degree; but was forced to abandon to *Sandrocottus*, the Country along the Banks of the *Indus*, and ſome Cities which *Alexander* had built. *Seleucus* left *Patroclus* Lieutenant of that Country, who wrote Commentaries which are loſt by the Injury of Time.

Ptolomy Philadelphus ſent *Dionyſius*, an able Mathematician, to the *Indies*, and *Megaſthenes* Envoy to King *Sandrocottus*. *Megaſthenes* left ſome Relations of that Embaſſy, of which there are a few Extracts yet remaining. *Ptolomy* ſent afterwards *Dimachus* Envoy to *Altritrochades*, Son of *Sandrocottus*, who likewiſe compos'd ſome Memoirs of his Negotiation. By thoſe means the *Indian* Trade was reſtor'd again to *Ægypt*, and continued during the Race of the *Ptolomies*.

The Succeſſors of *Alexander* made war upon one another, particularly *Seleucus* upon *Antigonus*, in which there were great Fleets fitted out on both ſides in the *Mediterranean*. *Antigonus* was a Prince of a great Genius; for, having to do with *Ptolomy*, *Lyſimachus* and *Caſſander*, Maſters of the Sea, he ſent out a Fleet with great Induſtry from the Coaſts of *Phœnicia*, to diſpute with them this Empire of the Sea: he had promiſed to his Army, who were diſcourag'd at the ſight of *Seleucus*'s Fleet, conſiſting of an hundred Sail, that at the end of the Summer they ſhould ſee a Fleet of his of five hundred Sail: he kept his word nearly as to the Number, but effectually as to recovering the Command of the Sea. He made himſelf Maſter of the City of *Tyre*, which, even after the Deſtruction of *Alexander*, had recovered in ſome degree its Trade. This was a wonderful Effect of the Vigour of a great Prince, and a great Indication of a maritime Genius remaining in that part of the World.

Pliny ſpeaks confuſedly of the Navigations of *Seleucus* and *Antigonus* in the *Caſpian*, which he erroneouſly ſuppoſed to be a Gulph of the *Scythian* Ocean. *M. Huet* juſtly complains of *Alexander* and his

Succeſſors

Succeſſors for introducing great Confuſion in Geography, by the ridiculous Vanity of new naming the places which they conquer'd.

The Deſcendants of the Succeſſors of *Alexander* cultivated Navigation in ſome leſſer degree with various Succeſs, till they were all ſubdued by the *Romans*.

During the Wars of *Seleucus* and *Antigonus*, the *Rhodians* had ſignaliz'd themſelves at Sea: it ſeems to have been the Policy of that wiſe trading Nation to keep an exact Neutrality, as far as they were able. They made it their Buſineſs to clear the Seas of Pyrates, and purſued their Trade; but as their Country ſubſiſted by *Ægypt*, they had more Inclination for *Ptolomy* than any of the reſt, therefore they were reſolved generouſly to ſuffer the laſt extremities rather than enter into an Alliance with *Antigonus* againſt him. They ſuſtain'd a Year's Siege by *Demetrius*, the Son of *Antigonus*, who had not his Equal in the Art of beſieging Cities. He had a Fleet of four hundred Sail before their City; and yet after all they oblig'd him to raiſe the Siege, and made an advantageous Peace. They purſued the ſame Maxim with the *Romans*, cultivating their Friendſhip, but endeavouring to preſerve their Neutrality. This embroil'd them afterwards with *Philip* of *Macedon*, in his Wars with the *Romans*; and with *Mithridates*, who did not find his account in quarrelling with that great and wiſe Nation.

The Hiſtory of Navigation about this Period is more particular and diſtinct, and in order to underſtand it, it is neceſſary to ſay ſomething of the different Names, Figures, and Bulks of Ships. The firſt Diviſion of Ships was into Ships of War, called by the *Romans Claſſicæ*, and Ships of Burthen or *Onerariæ*. The firſt ſort went with Oars, the ſecond with Sails commonly, tho' both were ſometimes uſed. The *Claſſick* were called long Ships, the *Onerariæ* round, becauſe of their Figure approaching towards circular or oval: This Figure, tho' proper for the Stowage of Goods, was not the fitteſt for ſailing, becauſe of the great quantity of leeward way, except when they ſail'd full before the Wind. There was likewiſe

a mixt ſort betwixt the long and the round, which *Appian lib.* 5. deſcribes thus: *Octavia, impetrata ab Antonio licentia, decem phaſelos triereticos fratri dono miſit, id eſt mixtos ex longarum forma & onerariarum.*

Another diſtinction of Veſſels was *Apertæ* or open Boats, and *Cataphractæ*, ſuch as had Decks. The firſt were called *Aphractæ*.

Some of the long Ships were called *Actuariæ*, becauſe of their great Swiftneſs, which the *French* tranſlate *Brigantines*. *Cicero*, in an Epiſtle to *Atticus*, calls a Ship *Decem Scalmorum*, of ten Banks of Rowers, *Actuariola*. The little Veſſel, which *Cæſar* went aboard of at *Brunduſium*, *Plutarch* calls Πλοῖον Δοδεκάσκαλμον, a Ship with twelve Banks of Oars. *Suetonius* calls it *parvulum Navigium*.

There were *Myoparones*, *Hemiolia*, *Greek* names for Ships of War, and may be properly tranſlated Frigats; *Lembi*, little Ships, good Sailers, which the Pyrates uſed; they ſometimes had *Roſtra*.

Liburnæ were a ſort of light Ships, ſo called from the *Liburni*, a people of *Illyria*, who pyrated in them: They were *Biremes*.

Ordine contentæ gemino creviſſe Liburnæ. Lucan.

The *Romans* called all their light Ships *Liburnæ* or *Liburnicæ*.

Amongſt the Ancients all great Ships had *Scaphæ* or Boats.

In the firſt maritime Was of the *Greeks* their Ships muſt have been very ſmall, for * *Xenophon* writes that the *Athenians* put aboard a Fleet of an hundred ſail, a thouſand armed Men and four hundred Archers, about fourteen men a-piece, beſides the Rowers. The Ships of *Xerxes*'s Fleet muſt have been bigger; for, as † *Herodotus* relates, there were 1207 Ships, and aboard them, according to his Computation, two hundred and thirty men a-piece.

The manner of Sea Engagements of the Ancients (which was to bore and ſink the Enemy's Ships with the *Roſtra*) gave bulky and high Ships a great Advantage over their Enemies, by the force of

* Lib. 2. Hellen. † Herodot. lib. 7.

of the Stroak of a large Ship. The Height was likewiſe no ſmall Convenience in boarding, and throwing of miſſile Weapons. So that it was much more true amongſt them than amongſt us, that a little Ship durſt not lay her ſide to a great one: and tho' great Ships were commonly bad Sea Boats, they had a ſuperior Force in a Sea Engagement. The Shock of them being ſometimes ſo violent, that it would throw the Crew on the upper Deck of leſſer Ships overboard. This occaſion'd the Ancients gradually to encreaſe the Bulk of their Ships, till they came at laſt to an enormous ſize. This could not be done by one Row or Tire of Oars, but by ſeveral, therefore they built *Biremes*, *Triremes*, *Quinqueremes*, and, if we may believe them, ſome with forty Tire of Oars.

I ſhall not enter into the manner of conſtruction of ſuch large Veſſels, ſeeming a thing impoſſible to moderns skill'd in Sea Affairs; however, that ſuch Banks of Oars were not all in the ſame Plain, but rais'd above one another, is evident from the Figures and Deſcriptions of ancient Ships, and many other Paſſages of Authors.

In *Triremes*, the upper Rowers were called *Thranites*, the middle *Zygites*, the lower *Thalamites*. There is a paſſage in an old Scholiaſt of *Ariſtophanes* that explains this matter otherwiſe, and tells you that *Thranites* were in the Stern, the *Zygites* were in the Midſhip, and *Thalamites* in the Prow: but he was a Writer of a later Age, ignorant of Sea Affairs, and lived after the time of *Theodoſius*, when *Triremes* were no more uſed. *Lucan*, ſpeaking of the Veſſel of *Brutus*, tells us that the higher Oars touched the Sea at a great Diſtance.

------ *Summis longe petit æquora Remis.*

Silius Italicus lib. 14.

Intrat diffuſos peſtis Vulcania paſſim,
Atque implet diſperſa foros, trepidatur omiſſo

Summis

Summis Remigio, ſed enim tam rebus in arctis
Fama mali nondum tanti penetrarat ad imos.

By which Paſſage you ſee the Fire might be amongſt the upper Tire of Oars before the knowledge of it had reach'd to the lower.

Arianus, ſpeaking of a *Biremis*, ſaith αὐτῶν τὰς κάτω κώπας οὐκ ἔτι πολὺ ἔξω ἐχούσας τοῦ ὕδατος, that the lower Tire of Oars were little above the Water.

The different orders of Rowers had different Rates of Pay. The *Thranitæ*, as **Thucydides* tells you, had better pay, becauſe they wrought with longer Oars. *Appianus*, *lib.* 5. *de Bello Civili*, has a paſſage, which puts the matter beyond all doubt, which tranſlated runs thus: "*Agrippa* attack'd the Ship of *Papias*, he "ſtruck it under the Prow, and ſplit it down to the Hold, "thoſe who were upon the Towers to defend the Ship were "thrown overboard, the Water which the Ship took drowned "the *Thalamitæ*; the Deck being broken, the other Rowers ſaved "themſelves by ſwimming." Thus we ſee in the Quotation from *Silius Italicus*, that when the Ship was fir'd aloft, the *Thranitæ* were in moſt danger; and from that of *Appian*, that when the Water broke in below, the *Thalamitæ* were drowned, and the *Thranitæ* eſcap'd.

Pauſanias, in his *Atticks*, ſpeaking of a Ship of *Delos*, ſaith that it had from the Deck downward nine Rowers.

A paſſage of *Memnon*, related and tranſlated by *Palmerius*, runs thus: "The *Leontophoros* was a Ship admirable as well for its beau-"ty as its bulk; it had eight Tire of Oars, an hundred at each "Tire, eight hundred on each ſide, in all 1600." This paſſage and ſome others have occaſion'd a great Diſpute among the Antiquaries, whether there were more than one Man at the long Oars of ancient Ships, it ſeeming a thing impoſſible for ſuch long Oars to be managed by one Man.

* Lib. 6.

All the Writers of *Tacticks* agree in this manner of Conſtruction of Ships with ſeveral Tires of Oars, particularly an anonymous Author acquaints us with the Phraſeology. *Triacontorus*, *Teſſaracontorus*, *Pentecontorus*, ſaith he, are ſo term'd from the number of Oars; but *Uniremis*, *Biremis*, *Triremis*, &c. denote the number of Orders or Tires of Oars. If there were yet any doubt of this matter, the Figures of ancient Ships remaining are an ocular demonſtration, in which it is obſervable, that the *Columbaria*, Pigeon-holes, as they were called, thro' which the Oars paſſed, are not placed immediately over one another in the ſame vertical plain, but by way of *Quincunx*, or chequer'd, which in effect brings the caſe to the ſuppoſition of *Fabretti*; and the Problem is reduced to this, what perpendicular height is neceſſary to place ſeveral ranks of Rowers as it were upon Steps of Stairs in a Plain inclin'd to a horizontal Line in a given Angle? *Quinquiremes*, which were the greateſt Ships in common uſe, are very poſſible after this manner.

There are ſome Ships of enormous Bulk mention'd by the Ancients, built more for Oſtentation than Uſe. *Demetrius Poliorcetes*, of whoſe naval Wars we ſhall ſpeak afterwards, ſeems to have been the beſt Ship-builder amongſt the Ancients, of whom *Plutarch* reports, that the Bulk of his Ships ſurpriz'd his Friends, and their Beauty created ſome Delight in his Enemies. He built two Ships of ſixteen and another of fifteen Ranks of Oars, which moved as eaſily as thoſe of a leſſer ſize; and warlike Machines for Sieges ſo well contriv'd that they aſtoniſh'd his Enemies: ſo that *Lyſimachus*, his mortal Foe, having obtain'd the favour of ſeeing his Ships and Machines, ſurpriz'd at the Contrivance, cried out, that they were built with more than human art.

Athenæus gives the following Liſt of the Fleet of *Ptolomy Philadelphus*; two of thirty Tires of Oars, one of twenty, four of thirteen, two of twelve, fourteen of eleven, thirty of nine, thirty ſeven of ſeven, five of ſix, ſeventeen of five, double that Number of four, and of three and an half which were called *Trieremiolia*; the reſt of the Ships, which were diſtributed throughout the whole Empire, were above four thouſand.

What

What *Atheneus* relates from *Calixenus* of two Ships built by *Ptolomy Philopator* is ſtill more ſurpriſing; "That Prince, ſaith he, built "a Ship of forty Ranks of Oars, its length was 280 Cubits, breadth "38, the * *Acroſtolion* on the Prow was 48 Cubits above the Wa- "ter, † that on the Stern 53. It had four Rudders, each of 30 Cubits. "The Oars of the *Thranitæ* or higheſt Ranks of Rowers, 38 Cu- "bits, which were eaſily managed becauſe the part within the Ship "was counterpois'd with Lead. It had two Prows and two Sterns, "twelve Decks, each 600 Cubits in Circumference. To give the "Ship her due Motion, required 4000 Rowers, and 400 other "Seamen; 2800 Soldiers to defend it, beſides a great number of "other Officers, as Commiſſaries of Proviſions, *&c.*" I ſhall not enter into the Credibility of this Deſcription, or the Mechaniſm of the Ship: only taking the account as it ſtands, and comparing it with one of our firſt rates of 100 Guns, of which I believe the Dimenſions may be, length of the lower Gun Deck 170 feet, length of the Keel for Tunnage 135 feet, breadth from out to out 48, depth in the Hold 19½. By the common Rule for meaſuring of Tunnage: the Length of the Keel 135×48 the breadth, and this multiplied by 24 the half breadth, dividing the Product by 95, becauſe we ſuppoſe both Ships without Guns, will give in round numbers 1637 for the Tunnage.

In the meaſure of *Ptolomy*'s Ship, becauſe it was a *Greek* who deſcribes it, we ſhall make uſe of our own Cubit of a foot and a half, which differs very little from the *Grecian*: the Dimenſions of the Ship are

	Cubits.		*Feet.*
Length	280	=	420
Breadth	38	=	57
½ Breadth	19	=	28,5

420×57×28,5 the Product is 682290; which divided by 95 gives 7182, ſo that the Proportion of the Burthen or Tunnage of this Ship of *Ptolomy* to one of ours of an hundred Guns is 7182 to 1637, near 4½ to 1. This

* Gratings. † Quarter-deck

This Computation proceeds on the Suppoſition that thoſe Ships were ſimilar Solids, which perhaps is not true, but we can compute on no other.

The *Thalamegus* was a Ship built by the ſame *Philopator* for ſailing on the *Nile*, deſcrib'd likewiſe by *Calixenus* of a ſurpriſing Bulk, Beauty and Expence. We ſhall not enter into a Detail of all the particulars, it being rather a floating Palace than a Ship, but conſider it in relation to our preſent purpoſe as to the Dimenſions, which ſtand thus,

	Greek.	*Feet.*
Length	½ Stadium or	300
Breadth	30 Cubits or	45
½ Breadth	15 Cubits or	22,5
Depth	40 Cubits or	60

And 300×45×22,5 give 303750, which divided by 95 makes 3197 Tuns for the Burden: ſo that the *Thalamegus* was about double one of our 100 Gun Ships. But a more exact way of computation will be, inſtead of taking half the Breadth to take the Depth of the Hold, which is proportionably much greater in the antient Ships abovementioned than in ours, and indeterminately expreſſed in the Deſcription. For in the firſt Ship the Height of *Acroſtolion* above Water is mentioned to be 48 Cubits: in the ſecond, the height of the Tent or Auning above Water 40 Cubits.

Hiero, King of *Syracuſe*, employed *Archias* under the Direction of *Archimedes*, to build a Ship of immenſe Bulk and Expence. *Athenæus* writes that there was as much Wood cut from Mount *Ætna*, as would have built ſixty *Triremes*, beſides a great deal of Plank that was brought from *Italy* and other parts of *Sicily*. The Ship was built by halves, and the one half being finiſhed, and by help of a Screw invented by *Archimedes* launch'd into the Water, the other half was join'd to it by great Braſs Nails, weighing above ten pound a-piece, mortiz'd with Lead. It would be too

tedious

tedious to relate all the Conveniencies, Apartments, Gardens, Walks, Baths, *&c.* aboard this Ship; among other things there was a Fiſh-pond, and a Reſervoir holding two thouſand *Metretes* of Water, that is, according to the Tables, above eighty five Tuns. It had ſeveral Tenders, particularly one mentioned, that was of the Burden of three thouſand Talents; a Talent was ſixty *Minæ*, and the antient *Attick Mina* was our Pound Averdupois, conſequently two Talents made an hundred and twenty Pounds, called a hundred Weight, and forty Talents made a Tun, therefore this Ship was juſt ſeventy five Tun. There were other Tenders, which the Author ſaith were only five hundred Talents, or the ſixth part of this, *viz.* twelve Tuns and an half.

There is great reaſon to believe that the antient Merchant Ships were much leſs than ours. *Cicero* tells you in his twelfth Epiſtle to *Lentulus*, that they diſcovered by intercepted Letters that *Dolabella* deſign'd, when his Affairs grew deſperate in *Syria* and *Egypt*, to pack up bag and baggage, and ſail for *Italy*, and for that purpoſe was about to ſeize upon tranſport Ships, the leaſt of which was of two thouſand *Amphoræ*, that is about fifty ſix Tun, which it ſeems he thought a large Ship; if it were only the meaſure of the Capacity, and not of the Burden, it would be ſtill much leſs.

Pliny lib. 16. cap. 40. ſpeaks of one very large Ship of Burden, which brought over from *Ægypt* the great Obelisk that ſtood in the *Circus* of the *Vatican* in the Reign of *Caligula*; which beſides the Obelisk itſelf had 120000 *Modii* of *Lentes* for Ballaſt, 120000 *Modii* make 1138 Tun.

All thoſe great Ships above mentioned fall very far ſhort of the Capacity of the Ark, which, according to the Dimenſions given us in the Scriptures, was 300 Cubits in length, 50 in breadth, and 30 in height: which ſuppoſing it a Parallelepiped, gives the Content $30 \times 50 \times 300 = 450000$ ſolid Cubits. The Cube of the *Jewiſh* Cubit in Feet and Decimals of a Foot is 6,068404224, this multiplied into the former Sum, gives 2730781,9 the Content of the Ark in Feet; 33,6875 cubical Feet make a Tun, therefore

fore dividing 2730781,9 by 33,6875, the Quotient is 81062 Tuns, the Capacity of the Ark; which being ſtow'd with things of no greater, and chiefly of leſs ſpecifick Gravity than Water, would make the Capacity not much different from the Tunnage.

But, to return to the Hiſtory of Navigation,

*The *Carthaginians* endeavoured to extend their Empire and their Commerce by the Conqueſt of *Spain*, *Sicily*, and *Sardinia*. They attack'd *Sicily* with various Succeſs, and often loſt there great Fleets and Armies. The two *Dionyſii* maintain'd their Tyranny there with great Conduct and Force for fifty years together, with a Fleet of five hundred large Ships, 100000 Foot and 10000 Horſe[a]. *Dionyſius* the father had once chaſed them out of the Iſland. He was the firſt who built *Quinquiremes*[b]. *Timoleon*, who came after the *Dionyſii*, forced the *Carthaginians* a ſecond time out of the Iſland, tho' they had manned out againſt him a Fleet of two hundred men of war, and above two thouſand Ships of Burden. Theſe ill Succeſſes did not diſcourage that ambitious and intereſted People, who looked upon *Syracuſe* as the Rival of *Carthage*; they ſtill purſued the ſame Scheme, and found afterwards a more dangerous Enemy in *Agathocles*, who from a Pyrate raiſed himſelf to be Tyrant of his Country. He not only beat the *Carthaginians* in *Sicily*, but beſieged them in their Capitol in *Africk*, and [c]reſtored the *Sicilians* to the Empire of thoſe Seas. After the Death of *Agathocles* the *Carthaginians* renewed their Pretenſions upon *Sicily*: the *Sicilians* called to their aid *Pyrrhus*, King of *Epirus*, who joining his Ships to thoſe of the *Syracuſians*, compoſed a Fleet of more than two hundred ſail, beat the *Carthaginians* at Sea, and made himſelf Maſter of the Iſland. But the *Romans* having obtained the ſame Advantages over him in *Italy*, as he had obtain'd over the *Carthaginians* in *Sicily*, obliged him to abandon both *Italy* and *Sicily*.

The

* *About* A.M. 3595. Olympiad 92.
[a] Vid. Diodor. Sicul. Juſtin. & alios.
[b] *About* Olympiad 109.
[c] *About* Olympiad 117.

The *Carthaginians* diſputed with the ſame obſtinacy the Poſſeſſion of *Sardinia*, and with no better Succeſs. Their Attempts on this Iſland was the cauſe of the ſecond *Punick* War, of which we ſhall ſpeak afterwards.

The *Tyrians*, from whom the *Carthaginians* were deſcended, had eſtabliſhed a Colony at *Cadiz*; the People of *Cadiz* procured their aid againſt the *Spaniards*, in which War they had got poſſeſſion of ſome part of *Spain*. The great *Hannibal* afterwards extended their Conqueſts as far as the *Eber*. They were beat out of that Country by the *Romans*, of whoſe naval Power I ſhall now begin to ſay ſomething.

The *Romans*, incited by the Example of their Neighbours, and compelled to it by Neceſſity, began to think ſeriouſly of acquiring a maritime Force. *Polybius* tells us, that before the firſt *Punick* War they had not thought of the Sea: this is not to be underſtood in a ſtrict ſenſe; for the ſame Author makes mention of a Treaty between them and the *Carthaginians*, *An. U. C.* 245. in the time of the firſt Conſuls, which was two hundred and fifty years before the firſt *Punick* War, in which they engaged themſelves not to ſail beyond the North Promontory of *Carthage*, unleſs compelled by Neceſſity.

The Navigation of the *Romans* is regulated by particular Clauſes in that Treaty. In the year of *Rome* 402 there was another Treaty of Commerce made with the *Carthaginians*, in which the *Tyrians* and People of *Utica* were comprehended as Allies of the *Romans*. It appears by theſe Treaties, that the *Romans* had not only practiſed the Sea, but pyrated on it. The third Treaty between the then *Romans* and the *Carthaginians*, was made in the year of *Rome* 473. By this Treaty it appears that the *Romans* had very much neglected their maritime Affairs, for they ſtipulated with the *Carthaginians* to furniſh them with Ships both for Tranſport and War. In the year of *Rome* 416, ſeventy four years before the firſt *Carthaginian* War, the *Romans* had ſeiz'd upon the Fleet of the *Antiates*, now *Capo de Anzo*, conſiſting of twenty two Ships, among

which there were ſix armed with *Roſtra*, with which the Conſul *Mænius* adorn'd the publick place of Oratory. Theſe are plain Proofs of the *Romans* having applied themſelves to the Sea, before the firſt *Carthaginian* War.

It was in vain for the *Romans* to think of carrying on the War in *Sicily* againſt the *Carthaginians*, without a naval Force; and perhaps nothing can give a greater Idea of the moſt invincible Courage and Induſtry of that People, than this firſt Eſſay of their naval Preparations; having built in the ſpace of ſixty Days from the time of cutting down the Timber a Fleet of an hundred *Quinquiremes* and twenty *Triremes*, upon a Model of one of the Enemy's Ships which chance had made them Maſters of. They had been us'd before to waft over their Troops into *Sicily* in borrow'd open Veſſels. The Reader will find a very particular Account of this War in the firſt Book of *Polybius*, by which he may form likewiſe ſome Idea of the Veſſels of that time: For five years after the beginning of that War the *Romans* rigged out a Fleet, in which there were 140000 Men that bore arms. The Fleet conſiſted of three hundred and thirty Veſſels; in each Galley they had three hundred Rowers and an hundred and twenty Soldiers; for the number of Men being divided by the number of Ships gives four hundred and twenty four men a-piece.

The *Carthaginian* Fleet conſiſted of three hundred and fifty ſail, with 150000 fighting men aboard, which is more than four hundred and twenty eight men in every Ship. This ſhews that their Ships were very large. And who now (as *Polybius* ſaith) would contemplate the mighty Hazard to which thoſe two contending States were expoſed, and but hear the relation of the Preparation of ſuch Fleets and Armies without Aſtoniſhment, and taking part of the Peril with which they threatned each other. The Event was, that the *Roman* Fleet (although built by Shipwrights, and conducted by Pilots, both without Experience) defeated that of the *Carthaginians* *, both in the firſt and ſecond Battle; and had made the

* Olymp. 131. U. C. 498.

the *Romans* Maſters at Sea, had it not been for their Loſſes by Shipwreck; by which, the firſt year of the War, their Fleet, conſiſting of three hundred and fifty four ſail, was reduced to eighty. To repair this Loſs they built a hundred and twenty Ships in three Months time, and put to Sea with a Fleet of three hundred ſail, of which they loſt again the half by Shipwreck. This Fleet they recruited with two hundred ſail, whereof they loſt ninety three in a Sea-fight the year afterwards. This was attended by another Loſs: for the Conſul *Junius* paſſing over into *Sicily* with a Reinforcement of an hundred and twenty Gallies, and more than eight hundred Ships of Burden, his Fleet was deſtroy'd by a furious Tempeſt. Theſe Loſſes obliged the *Romans* to abandon the Sea to the *Carthaginians*, who by their Inſolence and ravaging the *Italian* Coaſts oppoſite to *Sicily*, forced the *Romans* again to try their Fortune at Sea with a Fleet of two hundred ſail, under the Command of *Lutatius* the Conſul, who obtain'd a compleat Victory over the *Carthaginians* in the year of *Rome* 511. After which theſe People were obliged to demand Peace, and give up to the *Romans* all their Poſſeſſions in *Sicily*. This Sea War coſt the *Carthaginians* five hundred *Quinquiremes*, and the *Romans* ſeven hundred, including their Shipwrecks.

The *Roman* Shipwrecks were occaſion'd undoubtedly by their Ships being bad Sea-boats, and themſelves but indifferent Seamen. For mere perſonal Valour could not ſupply want of knowledge in building and working their Ships. Of which there cannot be a greater Indication than that of the *Rhodian* Ship, which paſſed thro' the whole *Roman* Fleet, backwards and forwards ſeveral times, carrying Intelligence to *Drepanum*. *Polybius* ſaith, that the *Rhodian* Captain relying on his Knowledge and the Lightneſs of his Veſſel, paſſed in open day through all the Guards of the Enemy that awaited him; and in a kind of Mockery and Contempt of the Enemy, he would often lie upon his Oars, and then take a turn, and go quite round them, as if it were to provoke them to fight. This Ship by good luck fell into their Hands at laſt, and ſerved as

a Model to build others by. One cannot help making this Obſervation, that the People of that time muſt have been either more faithful to their Country, or better governed than thoſe in our days; for if the *Roman* Government ſubſiſted now, they would have had renegade Seamen and Ship-wrights enough to have ſerved them on this occaſion.

A little before the time of this firſt *Carthaginian* War lived *Hieron* King of *Syracuſe*, a wiſe Prince skill'd in maritime Affairs, of whoſe naval Architecture we have given a former Inſtance.

Ten or twelve years afterwards the *Romans* were engaged in a new War againſt the *Illyrians*, Inhabitants of the Eaſtern ſide of the *Adriatick* Gulph, who under the Authority and Permiſſion of their Queen *Teuta* infeſted all the neighbouring Coaſts with their Pyracies. *Teuta* had the Inſolence to put to death one of the *Roman* Ambaſſadors; ſhe was obliged, by a vigorous and ſucceſsful War which the *Romans* made, to conſent to give up all the Sea Coaſt, except a very few places; to reduce her Fleet two unarmed Brigantines, and not to ſail beyond the City of *Liſſus*, now call'd *Aleſo* or *Aleſſia* in the Neighbourhood of *Dyrrachium*, *Durazzo* in *Albania*. It was the conſtant Method of the *Romans* to diſarm thoſe Nations whom they had vanquiſhed at Sea: for what other Security could they have, it being impoſſible to bridle their Power in that Element by Garriſons, as at Land.

The *Iſtrians* broke this Treaty, and the *Illyrians* put to Sea fifty Brigantines, in which they ſail'd beyond the *Liſſus* as far as the *Cyclades*; but they were vanquiſhed by the Conſul *Æmilius*.

The Iſland of *Sardinia*, and the Uneaſineſs of the *Carthaginians* under a great Sum that was exacted from them by the *Romans*, were the cauſes of a ſecond *Punick* War; in which the Fleets of both Nations ſeem'd to be leſs numerous than in the firſt. The *Romans*, according to their uſual Spirit, when their Affairs were in the utmoſt Extremity in *Italy* by the terrible Invaſion of *Hannibal*, *Olymp.* 140. *U. C.* 536. ordered *Scipio* to paſs with a Fleet

to *Sicily*, and from thence to *Africk*. He with a Diligence, almoſt paſt Credibility, built, rigg'd and arm'd twenty *Quinquiremes*, and thirty *Quadriremes* in forty five Days, reckoning from the time of cutting down the Timber, a great part of which was green. The Victory he obtained over *Hannibal* in *Africk* put an end to that War. The *Carthaginians* beg'd and obtain'd Peace upon the very hard terms of having their Fleet reduc'd to ten Gallies, *Scipio* having burnt the reſt before their eyes to the number of five hundred of all Rates. What a miſerable Spectacle was this for a Nation that had been Miſtreſs at Sea ſo long? By this Treaty they were not only reſtrain'd as to their Ships of force, but the very Bulk of their trading Veſſels was regulated. It was remarkable in this ſecond *Punick* War, that whilſt *Hannibal* was victorious in *Italy* at Land, the *Romans* beat the *Carthaginians* at Sea.

The next Affair which the *Romans* had at Sea was with *Philip* King of *Macedon*, who after the Battle of *Cannæ* had entered into a Confederacy with *Hannibal*, of which the principal Article was, that he ſhould invade *Italy* with two hundred ſail of Ships. In the year of *Rome* 540, the *Prætor Lævinus* commanding the Fleet upon the Coaſt of *Brunduſium* (now *Brundiſi*) and *Calabria*, imbarked an Army aboard the Fleet, and forced *Philip* to raiſe the Sieges of **Oricum* and of †*Apollonia*, obliged him to retire into *Macedonia* by Land, and to burn the greateſt part of his Fleet, conſiſting of an hundred and twenty *Biremes*. The very ſame year the Cities of *Eubœa* were attack'd by three powerful Fleets, the *Roman*, that of *Attalus* King of *Pergamos*, conſiſting of eighty *Quinquiremes*, and that of the *Rhodians* of twenty *Cataphractæ*, that is, covered or cloſe Ships. Twelve years afterwards *Philip* engaged near the Iſland of *Chio* the Fleet of *Attalus*, and that of the *Rhodians* conſiſting of ſixty five Ships of War, beſides ſome of the *Byzantines* *Philip*'s Fleet conſiſted of fifty three co-

* Oricum *on the Coaſt of* Epirus, *built by the* Colchians.

† Apollonia, *a City of* Macedonia, *now called* Pollina.

ver'd Gallies, beſides ſeveral open Ships, and an hundred and fifty Galliots and Ships called *Priſes*, from the Figure of a Whale on their Prow, as a Mark of their extraordinary Swiftneſs. *Philip* at
A.U.C.556. laſt being beaten by the *Romans* under the Conduct of *Q. Flaminius*, obtain'd peace upon the hard condition of delivering all his cover'd Veſſels to the *Romans*. They left him ſome ſmall Veſſels, and one Galley of a prodigious ſize, which was ſaid to be of ſixteen Ranks of Oars. This great Ship carried the Conſul *Paulus Æmilius* to *Rome*, after he had vanquiſh'd *Perſeus* the Son of *Philip*.

Antiochus, ſirnamed the Great, at the Inſtigation of *Hannibal*, diſputed with the *Romans* the Empire of the Sea with the ſame bad Succeſs. He had an Admiral of great Experience, one *Polyxenidas*. The *Romans* had the advantage of the Battel by the Bulk of their Ships, and the Fleet of *Antiochus* in the Swiftneſs and Mobility of theirs, which ſerved them in great ſtead in the Flight. *Polyxenidas* deſpiſed the Fabrick of the *Roman* Veſſels, affirming them to be *inſcite factas & immobiles*. The Battel was fought on the Coaſts of *Ionia*. The *Rhodians* attacked a recruit of Veſſels, which *Antiochus* was bringing from *Sicily*; but *Polixenidas* his Admiral, a very able Officer, ſurprized the *Rhodian* Fleet, together with a part of the *Roman* at the Iſland of *Samos*: there were hardly ſeven Veſſels that eſcaped, twenty were taken and carried to *Epheſus*. *Æmilius Regillus* ſucceeded to *Livius* in the command of the *Roman* Fleet, and with eighty ſail beat that of *Antiochus* under the command of *Hannibal* and *Polyxenidas*, conſiſting of an hundred covered Veſſels. The *Romans* took thirty of them, and burnt or ſunk the reſt. The Defeat of his Army at land at the ſame time extinguiſhed his Hopes of diſputing with the *Romans* the command of the Sea. He was obliged to abandon all the *Aſiatick* Coaſt between the Sea and Mount *Taurus*, to deliver all his Fleet to the *Romans*, except ten middle-ſiz'd Brigantines, with which he durſt not ſail beyond the Promontories of *Cilicia*.

In execution of this Treaty, fifty great Veſſels were burnt by the command of the *Roman* Conſul. His Son *Antiochus Eupator*,

in

defiance of this Clauſe, began to augment his Fleet; but the *Roman* Senate ordered his ſupernumerary Veſſels to be burnt.

Hannibal apprehending leaſt *Antiochus*, after his Defeat, ſhould be obliged to deliver him up to the *Romans*, went into the Service of *Pruſias*, King of [a] *Bithynia*, and commanded his Fleet againſt *Eumenes*, King of *Pergamos* [b], an Ally of the *Romans*. Being fruitful in Stratagems, he threw into the Enemy's Ships earthen Bottles filled with Serpents, which put the Crew in Diſorder, and made them fly. This was the ſame *Pruſias*, who join'd with the *Rhodians* in a War againſt the *Byzantines*, and ſtop'd them from levying their Toll upon the Trade into the *Euxine* Sea.

The *Ætolians* were the next that by their Inſolence drew the Arms of the *Romans* againſt them. The Conſul *Fulvius* took their Capital City *Ambracia*, and reduced them to beg Peace, which they obtain'd by the Interceſſion of the *Athenians* and *Rhodians*. The *Iſtrians* who had join'd with them were Fellow-Sufferers. After this the *Romans* were Maſters of all the Iſles from the Coaſt of *Epirus* [c] to the Cape of *Malleum* [d].

Nabis, who had poſſeſſed himſelf of the Coaſt near to *Sparta*, and there pyrated outrageouſly upon all the *Peloponeſian* Trade, was the next that felt the Power of the *Roman* Arms. The Conſul attack'd him with a Fleet of forty ſail, eighteen cloſe Gallies of *Rhodes*, and ten others of King *Eumenes*, obliged him to deliver up his Fleet, and reſtore the Ships he had taken to the Proprietors, reſerving only to himſelf two Brigantines. Notwithſtanding which he rigged out another ſmall Fleet, and the *Achæans* ingaged him with theirs, not waiting for that of the *Romans*. *Philopœmen*, a great Captain at land, but a bad Admiral, took the Command upon him, and was beaten by *Nabis*. He made afterwards a Truce with the People of *Rome*, but before it expired he was kill'd by the *Ætolians*. After which *Sparta* entered into the Alliance of the *Achæans*.

The

[a] *A Province of* Natolia
[b] *In the Leſſer* Myſia. *There was a famous Library at* Pergamos.
[c] Epirus *lies between* Macedonia *and the* Ionian *Sea*; *it is now called* Canina.
[d] *Now called* Cabo Malio *in the* Morea.

The *Rhodians*, tho' Friends and Allies of the People of *Rome*, were not perfectly well pleaſed with this great Superiority of their maritime Power. They would fain have made themſelves Arbitrators between the *Romans* and King *Perſeus*. They ſpoke in a very high ſtyle to the Senate, and complain'd of a great many Grievances; but chang'd their Language much after the Defeat of *Perſeus*, laying the blame of this Proceeding on ſome particular Citizens. No body could be ſurpriz'd that ſo wiſe a People ſhould have ſuch Sentiments.

[c] *Perſeus*, after having in vain ſollicited his Neighbours for aid, ſent Envoys to *Carthage*, to kindle afreſh their antient Hatred againſt the *Romans*: He had a numerous Fleet, and ſome Ships of great Bulk. The *Romans* during this time had neglected a little their Sea Affairs, and their Fleet was ill man'd; but a Victory by Land over *Perſeus* ſoon ended the Quarrel; and he himſelf being taken Priſoner in the Iſland of *Samothracia*, whither he had fled, was carried to *Rome*. It was on this occaſion that *Paulus Æmilius* entered the *Tyber* in the above-mentioned royal Ship of *Perſeus* of ſixteen Ranks of Oars. *Gentius* King of the *Illyrians* had the ſame fate.

The *Romans* were ſurpriſed to ſee two captive Kings, and the ſucceſsful end of a War, of which they knew not the beginning. But as a mark that the *Romans* conſidered their maritime Power more in relation to War than their Trade, they made a preſent of an hundred and twenty Brigantines of the Fleet of *Gentius* to the People of *Apollonia*, *Corcyra* (now *Corfu*) and *Dyrrachium* (*Durazzo*.)

Polybius tells us, that from the Defeat of *Philip* King of *Macedon* till a conſiderable time after that of *Perſeus*, the *Romans* had abſolutely neglected the Coaſt of *Illyria*.

All this while the little *Aſiatick* Princes carried on maritime Wars againſt one another.

During

[c] Olymp. 150. U. C. 575.

During the *Roman* Wars in *Macedonia* the *Carthaginians* were preparing to ſhake off their Yoke. The *Romans* were inform'd of their ſecretly laying up naval Stores. Ambaſſadors were ſent to *Carthage*, under pretence of terminating the Difference between the *Carthaginians* and *Maſaniſſa*. Theſe Ambaſſadors were like to have been torn to pieces by the populace, but were convinc'd by ocular Demonſtration of the naval Preparations of the *Carthaginians*. Whereupon the *Romans* quickly fitted out a Fleet againſt them of fifty *Quinquiremes*, and a great many other Ships. The Conſul *Manlius* commanded the Land Army. The *Carthaginians*, ſurprized at ſo ſudden an Attack, followed the Example of *Utica*, which had ſubmitted to the *Romans*; who began by burning the *Carthaginian* Fleet; and, after having ſeiz'd a great number of Hoſtages, acquainted them with their reſolution of deſtroying their City, and ſettling them on the Continent five Leagues from the Sea. Upon hearing this they were ſeiz'd with Fury, and reſolved to ſuffer the laſt Extremity rather than ſubmit to ſuch cruel Terms. They were beſieg'd in form by Sea and Land. After *Scipio* had taken away the uſe of their Harbour, they dug a new one at another Quarter of their City, through which they ſent a Fleet of an hundred and twenty Ships of War, which attack'd the *Roman* Fleet, and burnt a part of it: but after all their vain Efforts, the City of *Carthage* was taken by the *Romans* ſeven hundred years from its Foundation, and ſix hundred and eight after that of *Rome*. The *Romans* burnt the remainder of this laſt Fleet, which is another mark of their ſmall Attachment for the Sea. *Carthage* at that time had ſeven hundred thouſand Inhabitants, as we ſaid before: and nothing could be a greater Sign of their Power and Riches, than that laſt Effort they made for their Preſervation. But ſucceeding times plainly ſhewed the *Romans* the Advantage of a City ſituated on that place. For, not to mention the Attempt of the *Gracchi* to rebuild *Carthage*[t], it was at laſt finiſh'd by *Auguſtus*, and peopled

[t] *Old* Carthage *ſtood about twelve Miles from* Tunis *towards the Sea. There is a ſmall Village there now.*

pled with *Romans* and *Africans*, two hundred years from the time of its Ruin, according to a Project left by *Julius Cæſar*.

After the deſtruction of *Carthage*, the *Romans* began to have a regular Commerce in *Africa*. It conſiſted chiefly in the Sale of Slaves carried to the Iſland of *Delos*, which by the happy Circumſtance of being reckoned a ſacred place, grew to be a free Port, where Nations warring with one another reſorted with their Goods, and traded as in a neutral Country.

The Deſtruction of *Carthage* was ſoon follow'd by that of *Corinth*[g], a City famous for Trade and Navigation; it had two Harbours, that of *Senchres* on the *Ægean* Sea towards the Eaſt, on the Weſtern ſide the Port of *Lechæum:* it was called by *Philip* of *Macedon* the *Chain of* Greece. The *Corinthians* were ſaid to be Inventors of *Triremes*, and of Weights and Meaſures; tho' both their Sea-craft and Arithmetick came originally from the *Phœnicians*. But at laſt their Impudence in violating the Right of Nations, and ill treating the *Roman* Deputies, drew the Vengeance of that People upon them: and the Conſul *Mummius*, after having beaten
A.U.C. 607. their Army, took, pillag'd, and burnt their City; which was af-
A.U.C. 710. terwards rebuilt by *Julius Cæſar*.

The Deſtruction of thoſe two famous trading Cities, *Carthage* and *Corinth*, fill'd the Seas with Pyrates: their Inhabitants having no certain abode, nor any other way of ſubſiſting. The *Romans* at that time were engag'd in a dangerous War againſt *Mithridates*, who was powerful at Sea, and uſed the Aſſiſtance of the Pyrates to reduce the *Roman* naval Power. *Antonius* attack'd the Pyrates of *Crete*, and by his too great Preſumption was defeated, upon the Senſe of which affront he died with Grief. This Loſs was repair'd by *Q. Metellus* Proconſul, who ſubdued all the Iſland, the Inhabitants of which had been free from the time of *Minos*. The Pyrates of the neighbouring Coaſts, *Pamphylia*, *Cilicia*, and *Lycia*[h] had the Courage to engage the *Roman* Fleet with their ſmall Veſſels,

[g] Corinth *ſtood upon the Iſthmus which joins* Peloponeſus *to the Continent, between the* Sinus Corinthiacus (Golfo di Lepanto) *and the* Sinus Saronicus (Golfo di Egina) *and ſo moſt conveniently for Trade.*

[h] *Provinces on the South ſide of* Aſia Minor.

ſels, but were routed, and their little Fortifications deſtroy'd. The *Romans*, as they were grown formidable, were likewiſe become odious to the Inhabitants of *Aſia*, *Greece* and *Ægypt*, which made thoſe Nations extremely reſpectful to the orders of *Mithridates*. The *Rhodians* alone kept their Faith with the *Romans*: Their Iſland was a Retreat to ſuch as eſcap'd from the Barbarities which were practis'd by that Prince at Sea; who for that reaſon attack'd the *Rhodians* with a mighty Fleet; but his deſign was render'd abortive by the ſuperior Art and Conduct of the *Rhodians*. *Lucullus*, under the command of *Sylla*, having with ſome difficulty collected a great Fleet, ſhut up *Mithridates* in *Pitany*, a City of *Troas*, whilſt *Fimbria* beſieged him by Land. *Fimbria* was a Perſon of ſo bad a Character, that *Lucullus* would not enter into any Aſſociation with him; but acting by himſelf, twice beat the Fleet of *Mithridates*. Yet I think there lies a great Suſpicion upon *Archelaus* the King's Admiral, who deliver'd up ſeventy Ships, near a third part of his whole Fleet, and perſuaded his Maſter to conſent to it, and afterwards took ſervice with his Enemies. *Mithridates* eſcap'd at that time, and revenged himſelf upon *Cotta*, Collegue of *Lucullus*. After the Death of *Sylla*, *Cotta* was beaten by Sea and Land (having loſt ſixty Ships) and afterwards beſieged in *Chalcedonia*. *Lucullus* raiſed the Siege, and ſhut up *Mithridates* himſelf in his Camp before *Cyzicus*[k], a Town of *Myſia*, which that Prince had beſieged. *Mithridates* choſe the Sea as the ſecureſt Retreat, but loſt ſixty Men of War by a violent Storm, as he was ſailing into the *Euxine* by *Byzantium*; he eſcaped narrowly himſelf aboard a ſmall Privateer, who carried him back to his Kingdom. *Lucullus* purſued the reſt of the Fleet, ſunk thirty Men of War on the Coaſts of *Troas* and *Lemnos*; and at laſt made himſelf Maſter at Sea; having with ſingular Modeſty and Frugality refus'd 3000 Talents, or 58125*l.* which the Senate had ordered him to refit his Fleet. He brought to *Italy* an hundred and ten roſtrated Galleys of the Fleet of *Mithridates*, and by his Behaviour in that War, and all the future part

i *About* Olymp. 177. U. C. 685.

k Cyzicus *is ſituated on the* Propontis.

of his Life, has left one of the greateſt Characters of Antiquity.

All this while the Pyrates grew very numerous, and form'd a ſort of Republick, which grew to ſuch a degree of Power and Inſolence, that a Merchant Ship durſt not put to Sea. The ordinary Convoys of Proviſions for *Rome* were intercepted, and the City was like to be famiſhed. The Towns and Temples on the Sea Coaſts of *Italy* were pillaged, or put under Contribution. The Pyrates appeared with great Fleets even at the Mouth of the *Tiber*. They had of all ſorts above a thouſand Ships, of which they formed regular Fleets. They had their ſeveral Ports and Magazines, but *Cilicia* was their principal Reſort, from whence they fitted out their Squadrons as occaſion requir'd. So preſſing an Evil demanded a powerful and ſpeedy Remedy. *Pompey* was entruſted with a command greater than had been given before to any *Roman* Citizen, and which, according to the reaſonable care of Liberty in that time, and afterwards loſt, gave much Jealouſy. It was no leſs than the command of all the Seas from the Straits of *Gibraltar* to the *Thracian Boſphorus*, with the bordering Coaſt fifty Miles up the Country. He had a Fleet equip'd of *Romans* and their Allies, conſiſting of five hundred ſail. With this Strength he defeated the Navy of the Pyrates on the Coaſt of *Cilicia*, and by a Conduct peculiar to himſelf, put a happy end to the War; of which I think the moſt prudent part was his Moderation and Indulgence, not reducing them to deſperation; but after having forbid them the uſe of the Sea, appointed them fix'd Habitations and Lands to cultivate in the inland Countries; which kind uſage made them afterwards the moſt faithful Subjects of the people of *Rome*. The ſucceſsful Management of this War, which he finiſh'd in three Months[1], makes perhaps the moſt glorious part of the Life of *Pompey*, and exceeds (in my Opinion) the greateſt Actions ever perform'd by *Cæſar*.

The

[1] Olymp. 178. U. C. 687.

The Navigation of the *Mediterranean* was now free, but the *Romans* enjoyed the Fruits of this Commerce very little, for their Trade was War. Another Scene of Action opened to the *Romans*; who, after the Conqueſt of *Gaul*, ſent Shipping into the Weſtern Ocean. After *Cæſar* had ſubdued the *Belgæ*, the *Venetæ*, a People inhabiting the Country about *Vannes* in *Britany*, whom *Strabo* makes of the ſame Nation with the *Belgæ*, foreſeeing that *Cæſar* intended to invade *Britain*, with which they had great Commerce, reſolved to divert him from his purpoſe by creating him ſome Diſturbance in *Gaul*. The *Venetæ* were very powerful at Sea, and a maritime Force was very neceſſary to attack them: *Cæſar* therefore gave order to build his Gallies on the *Loir*, and the Rivers that fall into it. He made *Decimus Brutus* Admiral of the Navy, with orders to ſail towards the *Venetæ* with what ſpeed he could, himſelf in the mean time marching towards them with his Land Forces. He tells us in his Commentaries, that the Tides were ſo much their Friends, and their Ships ſo accommodated to the nature of thoſe Seas, that they could eaſily remove themſelves from one Town to another, and ſo deluded him the greateſt part of the Summer; they made uſe of Iron Chains inſtead of Cables, and raw Hides inſtead of Sails. When his Fleet arrived, there was but ſmall hope of ſucceſs againſt two hundred and twenty ſail of Ships, of ſuch height and ſtrength that his Veſſels could do no execution upon them: To ſupply thoſe Inconveniencies he made uſe of this Device: he ordered his Men to arm long Poles with ſharp Hooks or Scythes, wherewith they took hold of the Tackling which held the Main-yard to the Maſt of their Enemies Ship, then rowing their own Ship they cut the Tackling, and brought the Main-yard by the board; thus the *Venetæ* loſt the uſe of their Shipping, and the Conteſt fell within the compaſs of Valour, in which the *Romans* were ſuperior; the *Venetæ* having loſt the greateſt part of their Fleet and their beſt Men in this Battel, were not able to make any farther reſiſtance.

This Obſtacle being removed, *Cæſar* invaded *Britain* [m] with eighty Tranſports, on board of which he put two Legions and the Officers of ſome Gallies. He had likewiſe prepared eighteen Tranſports for his Cavalry. He obſerves that the Figure and Uſe of the Gallies appeared ſtrange to the *Britons*.

To ſay no more of that Expedition, the ill Succeſs of which was in great meaſure owing to the Storms that diſordered his Fleet; the bad diſpoſition he made in landing his Men, ſhews him not only to be much inferior to *Pompey* as a Sea Officer, but to have had little or no Skill in that Element.

He invaded *Great Britain* a ſecond time, with a Fleet of eight hundred Ships, on board of which there were five Legions and two thouſand Horſe.

Before thoſe times the *Spaniards* and *Phœnicians* had great Eſtabliſhments in *Spain*; they traded to the Weſtern part of *England*, and the other *Britiſh* Iſles, comprehended by the Ancients under the general Name of *Caſſiterides*, from the Tin with which they abounded. The Commerce of Lead and Tin was ſo lucrative, that they kept it a great Secret. *Strabo* relates that a *Phœnician* being purſued by a *Roman* Veſſel, choſe to daſh his Ship againſt the Rocks, to draw the *Roman* after him, rather than diſcover his courſe. *Publius Craſſus* afterwards made that Voyage, and publiſhed his Journal: Both *Diodorus Siculus* [n] and *Tacitus* [o] acquaint us that Trade had civilized the Inhabitants of *Cornwall* more than thoſe of the other parts of *Great Britain*. [p] *Strabo* relates that the Commodities of *England* were Corn, Cattle, Gold, Silver, Iron, Skins, Leather, and hunting Dogs; and ſpeaking of the *Caſſiterides* he adds [q] Tin and Lead. [r] *Tacitus* joins Pearls. *Cæſar* mentions neither Gold, Silver, nor Pearls. [s] *Cicero* affirms in expreſs terms, from the Information of the Letters of his Brother *Quintus*, that there was neither Gold nor Silver in *England*, which ſhews that the *Engliſh* Metals were not then known

[m] *On the 55th Year current, Auguſt 26. in the Afternoon, as Dr. Haly has demonſtrated.*
[n] Diodorus Siculus lib. 4.
[o] Tacitus in vita Agricolæ lib. 24.
[p] Strabo lib. 4.
[q] Ibid. lib. 3.
[r] Tacitus vita Agricolæ cap. 12.
[s] Cicero Epiſt. fam. lib. 7. ad Trebat. Epiſt. ad Atticum lib. 4. Epiſt. 17 & 116.

known to the *Romans*, but were ſo very ſoon afterwards; for *Strabo*, who talks of their Tin and Lead Trade, lived under *Auguſtus* and *Tiberius*. There was either no Copper, or not a ſufficient Quantity in *England* at that time, becauſe they were furniſhed with that Metal from abroad[t]. Lead and Tin were uſed in the time of the *Trojan* War, and brought perhaps from the *Caſſiterides* by the *Phœnicians*, [u] *Herodotus* affirms that the *Greeks* had their Tin from thence. As for *Engliſh* Dogs they were brought to *Rome* before *Cæſar*'s Expedition: they are mentioned by *Gratian* in his *Cynogeticon*, and by *Strabo* as of common uſe. It has been doubted whether the *Britons* at that time had any other Shipping, except their ſmall Boats covered with Leather; but ſince *Cæſar* tells us that they often aſſiſted the *Gauls*, and particularly the *Venetæ*, we muſt imagine they had larger Veſſels built of ſolid Wood; beſides they muſt needs imitate the Fabrick of other Ships, which they ſaw in their own or foreign Ports every day.

The chief trading City among the *Gauls* was *Maſſilia* (now *Marſeills*) founded and peopled by the *Phoceans*, an *Aſiatick* Nation addicted to Commerce, whoſe Manners they retained; they civilized the *Gauls*, who were their Neighbours; but their Riches and Grandeur drew upon them the Envy and Hatred of ſome Nations among them, as the *Salyans* and *Ligurians*. They aſſiſted the People of *Rome* (who courted their Favour) on many occaſions. There are two Voyages of the *Maſſilians* recorded, one of *Euthemenes* beyond the Line, and another of *Pythias* towards the North as far as *Iceland*, which were treated, becauſe of the Strangeneſs of their Accounts, as fabulous by the Ancients; but time has confirm'd the poſſibility and the truth of them. *Marſeilles* had great Obligations to *Pompey*, and join'd with him againſt *Cæſar*, who took their City after the Loſs of two Sea Battles which they had ſuſtained in their own Defence. There were other trading Towns in *Gaul* leſs famous than *Marſeilles*, of which the Reader may ſee an account in *Monſieur Huet*.

Spain

[t] Cæſar. lib. 5. cap. 12. de Bell. Gall. Strabo lib. 3.

[u] Herod. lib. 3. cap. 15.

Spain (at leaſt the Southern parts of it) was always much more famous for Traffick than *Gaul*. The *Phœnicians* frequented it, eſpecially that part which lies towards the Straits of *Gibraltar* at the mouth of the *Bætis*, celebrated by ancient Authors under the name of *Tharſis*. See *Ezek.* xxvii. 12.

The Expedition and Conqueſts of *Hercules* are aſcrib'd to theſe Parts of *Spain*; and one *Colæus* of *Samos* is ſaid to have been driven thither by fortune about the forty fifth *Olympiad*, where he made a very rich booty; tho' *Soſtrates*, a certain *Greek* from the Iſland of *Ægina*, had been there before him. The *Phoceans*, driven from *Aſia* by the *Perſians*, came into theſe Countries about the ſixty eighth Olympiad. The *Phœnicians* were enticed thither by the Silver Mines, called by the Ancients the Mountains of Silver: Whereof they found ſuch Quantities, that they forged their Anchors and other Utenſils of their Ships of that Metal. I have mentioned the *Spaniſh* Mines in a former Diſſertation. Beſides Metals, *Spain* furniſhed ſeveral other rich Commodities, as Wine, Wool, Stuffs, linen Cloth, (of which they were ſaid to be the Inventors) Honey, Wax, Borax, Vermilion, foſſile Salt, pickled Fiſh, and a ſort of Ruſh called *Spartum*, uſeful for Cordage and other parts of Shipping, from whence *Cartagena* was called *Spartaria*. But Oil muſt not have been plentiful, even in *Andaluſia*, in thoſe times, ſince [x] *Ariſtotle* tells us that they purchaſed it of the *Phœnicians* with Bars of Silver. The Inhabitants of the *Baleares* made uſe of a factitious Oil, [y] and the *Portugueſe* inſtead of it uſed Butter. In the time of *Auguſtus* and *Tiberius* the Southern Coaſts of *Spain* ſent great Fleets of Merchantmen to *Italy*.

Germany was very little known before the time of *Cæſar*; and he knew only that part of it which lies on the Banks of the *Rhine*. In the Wars that were carry'd on under *Auguſtus*, that Country came to be more frequented, for his Fleets ſail'd round *Germany* beyond the *Cimbrick Cherſoneſus* (now *Jutland.*)

When

[x] Ariſtot. lib. de mirabilibus. [y] Strabo lib. 9.

When [a] *Strabo* ſpeaks of *Germany*, between the *Elb* and the *Baltick*, as an unknown Country, he muſt be underſtood to mean the inland places and not the Coaſt. [a] *Tacitus* ſays that the *Germans* were *Autochthones*, Originals of their own Country, and that they had no Communication with any ſtrange Nation; that the Tranſmigrations and peopling of Countries were made in former times by Sea, and not by Land; nevertheleſs there were ſeveral Inroads of foreign Nations into *Germany*, mentioned by antient Authors, particularly a [b] Voyage of the *Ægyptians* under the Conduct of *Oſiris* up the *Danube*; from them the *Suevi* [c] had their Worſhip of *Iſis*, and all the *Germans* that of *Teuth*, from whom they took the name of *Teutons*. According to antient Fables the *Argonauts* at their return from *Colchis* ſail'd up the *Danube*, and from thence paſſed into the *Adriatick*, carrying their Ship *Argo* upon their Shoulders: a Mark of great Ignorance in Geography among the Writers of that time. The manner of living of the *Nomades*, changing their Habitations, made them incapable of Trade. The Inhabitants on the Banks of the *Rhine* knew the uſe of Wine and Money, and taught both to their Neighbours. The Amber of the Northern Coaſts of *Germany* brought a conſiderable Profit, that commodity being in great requeſt at *Rome*. [d] *Scandinavia* had Harbours both upon the *Baltick* and upon the Ocean: the Inhabitants built Veſſels of a particular frame, with two Prows, and without ſails, like thoſe of ſome other people upon the *Euxine* Sea. They exchanged their dry Fiſh and other Merchandize with thoſe of the *Germans*; their Pitch and Copper brought them likewiſe conſiderable Profit. All the People of that Northern Tract Eaſtward of *Germany*, and a part of *Germany* itſelf, were very indiſtinctly known by the Ancients under the Name of *Scythians*, of whoſe Commerce there is little mention; and Monſieur *Huet* ſpeaks rather of the modern than ancient ſtate of the Trade of *Muſcovy* and *Poland*.

The

[a] Strabo lib. 7. [a] Tacitus de mor. Germ. [b] Diodorus Siculus lib. 1. [c] *Inhabiting the Country now* Schwaben, *the Capital is* Augsburg. [d] Scandinavia *was that Tract of Land which contains now the greateſt part of* Norway *and* Sweden.

The *Euxine* Sea is conveniently ſituated for Trade by the communication it has both with *Aſia* and *Europe*, and the great navigable Rivers that empty themſelves into it. The *Danube*, the *Boryſthenes*, the *Tanais*, open it to the *European* Nations on the Weſt and North, and on the Eaſtern Coaſt an Infinity of little Rivers from Mount *Taurus*, and its branches, brought down the Merchandiſe of *Aſia*, ſo that it furniſhed many rich Commodities to the Countries which traded towards it, ſuch as Gold and other Metals, Corn, Leather, Linen, Honey, Wax, Cattle, Furs, Drugs, as Rhubarb and Liquoriſh, Nuts, Timber for Ship-building, and ſome pretious Stones. The *Greeks* believed themſelves to be the firſt who had navigated that Sea, from the Story of the *Argonauts*; but the *Ægyptians* had been there before them; for *Seſoſtris* King of *Ægypt*, following the ſteps of his Predeceſſors, marched into that Country, and was defeated at *Colchis*. The *Greeks* eſtabliſh'd a great many Colonies on the Coaſt of the *Euxine*, and in honour of Commerce erected a Temple and Statue to *Mercury*, which *Arrian*[e] found at *Trapezus* or *Trebizond*. He mentions likewiſe the Port of the *Iſiacks*, ſo called from *Iſis* the Goddeſs of the *Ægyptians*. The Fiſhery of the *Euxine* Sea conſiſting in Sturgeon, Tunyfiſh, Cavear, which were exported to *Italy* and *Greece*, was ſo great that the Cuſtoms of them maintain'd the old *Andronicus Palæologus* and his Houſhold. The old *Byzantium* (now *Conſtantinople*) raiſed a great Toll upon the Trade that paſſed into that Sea.

The *Ægyptians* ſailed to the *Cimmerian Boſphorus*[f], *Palus Mæotis*[g], and the *Taurick Cherſoneſus*[h], unknown to the Ancients on the North ſide; for in [i] *Pliny*'s time they did not know whether the *Palus Mæotis* were a Gulph of the Ocean. The *Phœnicians* traded to it, as appears by *Lucian*. The Fable of *Iphigenia* and the famous Exploits of *Pylades* and *Oreſtes*, demonſtrate that there was a correſpondence between the antient *Greeks* and *Scythians* in that Country, where they afterwards eſtabliſhed Colonies. *Theodoſia* an antient

e Arrian. Peripl. f *The* Cimmerian Boſphorus *joins the* Euxine *and the* Palus Mæotis. g Palus Mæotis, *now called* Mare delle Zabache, *from a ſort of Fiſh.* h Taurick Cherſoneſus, *between the* Euxine *and* Palus Mæotis. i Plin. lib. 2. cap. 69.

tient Colony of the *Mileſians*, at the Entry of the *Cimmerian Boſphorus*, was an Harbour capable of an hundred Veſſels, a Place of much Commerce, almoſt deſerted in the time of the Emperor *Adrian*, afterward re-eſtabliſhed and poſſeſſed by the *Genoeſe*, under the name of *Caſa*, who carried on a great Trade there under the *Grecian* Emperors, till it was taken by the *Turks*. *Tanais* (now *Aſof*) was built by the *Greeks*. [k] *Olbia*, *Boryſthenis*, *Panticapæum* capable to hold an hundred Veſſels, *Capi*, *Phanagoria* and *Harmonaſſa*, are all Greek Colonies, and [l] *Cherſoneſus*, according to *Pomponius Mela*, [m] built by *Diana*. The Merchandiſe of the *Taurick Cherſoneſus* were Corn, Furrs, Butter, Horſes, which the *Tartars* at this Day exchange with the *Muſcovites* for other Commodities. *Arrian* in his *Periplus* of the *Euxine* has given us a Liſt of the Ports of that Sea, which is but ſhallow, and does not admit of Ships of great Burthen; the *Indian* Goods were commonly brought hither by the *Caſpian* Sea, into which they paſſed by the River *Oxus*. The *Tartars* who uſed to bring their Spices formerly to *Caſa*, after the *Genoeſe* were beaten out of that Town, from the memory of ſo gainful a Trade, have ſometimes ſent the ſame Commodities as far as *Genoa*, in Ships from *Caſa*. Their Predeceſſors, the [n] *Scythian Nomades*, Inhabitants of the Country beyond the *Palus Mæotis*, had no Commerce nor certain Abode, neither Corn nor Tillage, but lived on Milk and Horſe Fleſh.

Before we ſpeak of the Commerce of *Italy* in the time of *Auguſtus*, the Reader muſt underſtand that the *Tyrrhenians*, even before the Reign of *Minos*, had ſettled themſelves in *Italy*; they gave their name to the *Tyrrhenian* Sea; the Seat of their Empire was the Port of [o] *Luna*: the *Tarentines*, *Spinetes*, and *Liburnians* were likewiſe famous for their Navigation on thoſe Seas. The *Romans* made war upon the *Tarentines*, and obliged them by Treaty not to ſail beyond the Cape of [p] *Lacinia*. *Cornelius Valerius*, *Duumvir* of the Sea, confiding in the faith of that Treaty, approached *Tarentum* with

k *There were three* Olbias, *one in* Gallia Narbonenſis, *a ſecond in* Sardinia, *and the third here mentioned.*

l *It was called* Cherſonefus Emporium.

m Pomponius Mela, lib. 1. cap. 2.

n Ammian. Marcel. lib 3. cap. 2.

o Luna, *now* l'Erici *in* Tuſcany.

p *The Cape of* Lacinia *and that of* Salentum, *incloſe the* Sinus Tarentinus (Golfo di Taranto.)

his Fleet, which the *Tarentines* plundered, killing their Commander, and ſo arm'd the *Romans* againſt them, by whom they were ſubdued. The *Spinetæ*, as we ſaid before, were deſcended from the *Pelaſgi*, and ſettled at the Mouth of the River *Po*, which was called from them *Spinetick*. Thus the three Seas of *Italy*, the *Inferior* towards the South-Eaſt, the *Ionian* towards the South, and the *Adriatick* on the North-Eaſt ſide, were antiently commanded by theſe three different Nations: the firſt by the *Tyrrhenians*, the ſecond by the *Tarentines*, and the third by the *Spinetæ*. The *Liburnians*, who lived on the oppoſite Coaſt, that of *Illyria*, were great Navigators, and addicted to Pyracy; they poſſeſſed themſelves of ſeveral Iſlands in the *Adriatick*, were the Inventors of a light ſort of Veſſels called *Liburni*, which came to be much in uſe in the time of *Auguſtus*. All thoſe Nations were ſeverally ſubdued by the *Romans*, who for a long time, tho' they were poſſeſſed of their Ports, did not profit much by Trade. The Books of *Varro* concerning Navigation are loſt, which no doubt would have given us great light in thoſe matters. The *Romans* tho' they had no great Genius for Trade, yet were not entirely neglectful of it. The Eſtabliſhment of the *Præfecti Annonæ* was very ancient, their Buſineſs was to ſupply the City with Corn, which they tranſported at firſt from *Sicily* and *Sardinia*, and afterwards from *Africa*; under the firſt Emperors from *Ægypt*; and in the Declenſion of the Empire from *Marſeilles* and *Gaul*. In the year of *Rome* 259 there was a College of Merchants inſtituted, called the College of *Mercurials*, from *Mercury* the God of Commerce. We do not read of any great Improvements made in Commerce by that Society: The deſtruction of *Carthage* and *Corinth* did not increaſe the Trade of *Italy* ſo much as one would have imagined; but when thoſe two great Cities were rebuilt, *Auguſtus* apply'd himſelf more ſeriouſly to Affairs of Trade and Navigation; he ſent large Squadrons into the Ocean beyond the *Cimbrick* Promontory on the Coaſt of *Africk* towards the *Line*; to the *Palus Mæotis* and the *Arabick* Gulph or the *Red Sea*. The *African* Trade was manag'd at

Utica.

Utica. There are many Laws in the *Digeſt*, which ſhew that the *Romans* apply'd themſelves to Trade. Theſe related to priviledges, as exemption from municipal Offices annext to the Proprietors of Ships of ſuch burthens, employed in the bringing home of Grain. Several Citizens by a fraudulent fulfilling of the Condition endeavoured to get the Benefit of the Priviledge, without anſwering the Intention of the Law, which fraudulent practices were provided againſt by new Laws: The Conſtruction of Ships was forbidden to Senators, by a Law made by *Claudius*, Tribune of the people, in the time of the ſecond *Punick* War, and re-enacted by the *Julian* Law of Concuſſions.

During the Triumvirate of *Octavius*, *Antony*, and *Lepidus*, young *Pompey* built a Fleet of large Ships, and good Sailors, commanded by experienced Captains, endeavouring, after the example of his Father, to purſue his Fortune at Sea; and encouraged by ſome Victories his Ships had obtained over thoſe of *Cæſar*, he called himſelf the Son of *Neptune*, and wore a ſea-green Habit: He was defeated in a Sea Battel by *Agrippa*, who commanded *Cæſar*'s Fleet. This Engagement was on the Coaſts of *Sicily*, with three hundred Ships on each ſide. *Agrippa* was an expert Sea Officer; but altho' his Maſter *Octavius Cæſar* had no Genius or Inclination for theſe Expeditions, yet he honour'd his Admiral *Agrippa* with a naval Crown.

At laſt the Battle of [9] *Actium*, between *Antony* and *Cæſar*, gave a deciſive ſtroke in the Command of the Sea: The different accounts that are given of the Numbers of Ships on both ſides by ſeveral Authors, are reconcileable, by ſuppoſing that ſome ſpoke of the men of war only, and others added the Tranſports. If *Plutarch*'s Account be true, *Antony*'s Ships muſt not have been of very great bulk; for there were two and twenty thouſand Soldiers on board a Fleet of perhaps four hundred ſail, ſince three hundred were taken in the Battle. *Cleopatra* fled with ſixty, and *Antony* in one *Quinqueremis*: according to this Account there muſt not have *U. C.* 723. *Sept.* 2.

9 Actium *is now called* Capo Figalo, *at the Entry of the* Sinus Ambracius *or* Golfo di Larta.

been above fifty five fighting Men on board every Ship one with another; this Victory was obtain'd by the advantage of the Ships called *Liburni*, which for that reaſon came afterwards to be of common uſe. *Auguſtus Cæſar*, to eſtabliſh himſelf in the Dominion of the Seas, rigged out a powerful Navy to clear it of the Pirates of *Malta*, *Corfu*, and the *Liburnians*; he appointed two Stations for his Fleets, which were conſtantly equipp'd, one at the Cape of *Miſenum*, in the *Tyrrhenian* Sea, and the other at *Ravenna* on the *Adriatick* Gulf; the firſt had the command of all the Sea weſtward, and the ſecond of the Eaſtern, as far as the *Palus Mæotis*. *Ravenna* continued a large and capacious Harbour for a conſiderable time but at laſt the Sea left it, and it was choak'd up with ſlime and ſand.

The *Romans* were now Maſters of all the Trade of the world, but they were more employed in extending their Dominions than cultivating their Commerce. It is certain, whatever *Strabo* may alledge to the contrary, that the Ancients coaſted only in their Navigations, ſeldom taking the open Sea.

Pliny tells us that the *Romans* ſteer'd the ſame Courſe to the *Eaſt-Indies*, which the Fleet of *Alexander* did, and deſcribes it exactly from *Alexandria* to the *Indies*; he ſays, the deſire of gain had made the Merchants ſteer ſhorter and leſs dangerous Courſes ſometimes, by taking the open Sea, by ſailing from one Cape to another, which was both a ſafer and ſhorter Courſe. What he ſays concerning the Circumnavigation of *Africa*, from the Straits of *Gibraltar* to the *Red-Sea* is very remarkable, and puts the matter of fact beyond doubt. This he proves from the Wrecks of Veſſels, which had ſail'd from the Coaſt of *Spain*, the broken pieces whereof were found in the *Red-Sea*. He ſpeaks of *Hanno's* Journal of the ſame Voyage, as a thing certain; and adds upon the Credit of *Cornelius Nepos*, a faithful Hiſtorian, that one *Eudoxius* flying from *Ptolomy Lathyrus*, King of *Ægypt*, embark'd on the *Red-Sea*, and landed at *Cadiz*.

The

1 Plin. lib. 6. cap. 23. 1 Lib. 2. cap. 67.

The *Romans* improv'd their Navigation by their Commerce with Nations more skilfull in thoſe matters than themſelves. Mr. *Huet* thinks that the cuſtom they had of giving the colour of the Sea to the Hulks, Sails and Mariners of their Spy-boats to keep them from being diſcover'd, came from the *Veneti*, a people of *Vannes* in *Britany*, and this upon the Authority of *Vegetius*, and becauſe of the *Latin* name of that colour *Venetus*. That the *Romans* cultivated Navigation chiefly with regard to War, is plain from [u]all their Hiſtory. The Statue of *Victory* ſet up in the Port of *Oſtia*, and the Medals of *Marcius Cenſorinus*, *An. U. C.* 630. ſtamp'd on the Reverſe with two Ships, and a Victory, are a plain proof of it. Their Medals ſtruck upon occaſion of ſending out Fleets of Victuallers, had this Legend, *ad coemendum Frumentum S. C.* ſo in the time of the Emperors *Annona Aug. Ceres Aug.*

Nothing advanc'd the trade of the people of *Rome* ſo much as the Reduction of *Ægypt* into the form of a Province by *Auguſtus*. *Rome* drew from *Ægypt* immenſe Riches: firſt it was a Granary for their Proviſions of Corn, which by a happy fertility they were able to furniſh to other Countries, ev'n in Years of Famine. This Commerce of Grain was conſtant and regular to *Rome* under the Emperors, and afterwards to *Conſtantinople*, where it continued even to the time of the Sultans. The Sea-ports of *Ægypt* were *Peluſium* (now *Damiata*) toward the Eaſt, and *Alexandria* toward the Weſt. The fertility of the Soil in grain, and its being not proper for Vines, put the *Ægyptians* upon drinking Ale, of which they were the Inventors; but they afterwards planted Vines, and made excellent Wine, particularly the *Moreau*[x] celebrated by [z]*Virgil*, *Horace* and *Strabo*. The victualing Fleets ſent to *Ægypt* were call'd by the *Romans Sacra Embole*, *Fœlix Embole*. Beſides the Fertility, the Scituation render'd *Ægypt* a central place for the Commerce of *Arabia*, *India*, *Æthiopia*, *Syria*, and for all the Coaſts of the *Mediterranean* and Ocean. Although the Harbours were extremely good, *A. U. C.* 725

[u] Veget. de re militari lib. 5. cap. 7. [v] Herodot. lib. 2. [z] Virgil. Geor. lib. 2. Horat. Carm. lib. 1. Od. 37. Strabo lib. 1.

[x] Read Mareotick. Langwith.

good, the difficult acceſs to their Coaſt, the ſandy Deſarts towards the Eaſt, the defence of the *Red-Sea*, with the *Iſthmus* joyning *Ægypt* to *Syria*, and the Mountains towards the South, were reckon'd as Bulwarks to the Country; and ſo they had been, (if poſſeſſed by Inhabitants of a warlike diſpoſition, but they were noted for the contrary Character,) rendring the Conqueſts of it difficult. *Seſoſtris* had join'd the *Nile* to the *Red-Sea* by a Canal, which opened a Water-carriage to the *Eaſt-Indies*. And what *Strabo* ſays of *Ptolomy Philadelphus* being the firſt who made a way for the marching of an Army from *Coptos* to the *Red-Sea*, is only a Complement to a *Greek*. The Ships which *Seſoſtris* ſent to the *Indies* muſt not have been ſmall, he had conſecrated one of 280 Cubits to the God *Oſyris*. *Lucian* ſaw an *Ægyptian* Ship in his time in the *Piræum* 120 Cubits long, 30 broad, and 29 deep. *Appian* in his Preface reckons the Forces by Sea and Land of *Ptolomy* the ſon of *Lagus* 200000 Foot, 40000 Horſe, 300 Elephants, 500 Gallies, 2000 ſmaller Veſſels, and 800 *Thalamegos* or Pleaſure-boats of a great ſize.

The Government of *Ægypt* was one of the great ſecrets of the politicks of *Auguſtus*; that Province was never given to a Senator, but always to a Knight, who was ſuppos'd not to have the ambitious aims of Senators. *Germanicus* was ſeverely reprimanded by *Tiberius* for travelling into *Ægypt* without his Permiſſion.

As to the Revenues of *Ægypt* in later times, *Emalcin*[x] Author of the Hiſtory of the *Saracens* ſays, that in the year of Chriſt 898 the Calif drew from *Ægypt* 300.200000 Crowns of Gold.

The Trade of *Ægypt* declin'd with the *Roman* Empire; grew ſtill leſs under the *Mamelukes*, who had a Genius and Maxims quite oppoſite to Commerce; and at laſt came to be entirely loſt by the navigations of the *Portugueſe* round the Cape of *Good Hope*, and their Eſtabliſhments in the *Indies*. *Grand Cairo*, which was built in the year of our Lord 795 out of the Ruins of the ancient *Memphis*, ſuffer'd much by the loſs of their Trade on this occaſion.

x Read Elmacin. Langwith.

occaſion. There remains ſome part of their Linnen trade, for which they were always ſo famous.

The ancient City of *Thebes*, call'd *Hecatompyle* from its hundred Gates, was almoſt ruin'd by *Cambyſes*, and very near deſolate in the time of *Strabo*; but *Alexandria* ſurpaſſed in Riches and Trade, not only all the other Cities of *Ægypt*, but of the whole World. [y] *Joſephus* deſcribes it with great pomp, telling us that it yielded to *Rome* in nothing, except in bigneſs. [z] *Ammian Marcellinus* calls it the chief of Cities. It ſent many rich commodities to *Rome*, as Cloaths of all ſorts, eſpecially Linnen, Spices, Paper, Glaſs, Hemp, magnificent Robes. As it exported many, ſo it received ſome from other *Europæan* Ports, which by reaſon of the fatneſs and heavineſs of the ground *Ægypt* did not produce, ſuch as Metals, Wood, Pitch, and ſome Fruits. This great Trade began to decline under the Reign of *Heraclius*, when the *Saracens* made themſelves maſters of *Ægypt*, but it recover'd a little again; for a *Jew*, one *Benjamin* of *Navar*, in his voyage made in the 12th Age, tells us that he ſaw there a great Trade, and reſort of Merchants. And, the *Indian* Trade, which had been brought to *Aſtracan* by the *Caſpian* Sea, and to *Caſa* by the black Sea, took once more the way of *Ægypt*, and continued till the time of the navigation of the *Portugueſe* to the *Indies*.

Æthiopia ſent many rich Commodities down the *Nile* into *Ægypt*, as Metals, particularly Gold. The Gold of *Ophir* is often mentioned in the Scriptures. [a] *Heliodorus* tells us that the *Æthiopians* uſed Gold for the moſt common purpoſes; beſides Gold, they had Ivory in abundance. The City of *Coptos* was the Magazine of all the Trade from *Æthiopia* by the *Nile*, as well as of thoſe Commodities that came from the Weſt by *Alexandria*. The Navigation of the *Arabick* Gulf being more dangerous towards the bottom, than the mouth, *Ptolomy Philadelphus* built *Berenice*, (ſo called from his Mother) at the entry of the Gulf, in the Country of the

y Joſeph. lib. 2. cap. 16. de Bell. Jud. z Ammian. Marcellin. lib. 22. a Heliodor. lib. 9. Æthiop.

the *Troglodites*, to receive the goods from *Coptos*. It had near that City the port of *Myos-hormos*, the harbour of Mice, and now call'd *Caſir*. *Aduli*, according to [b] *Pliny*, in the country of the *Troglodites* (a part of *Æthiopia*) was a place of great Trade. [c] *Strabo* tells you that in his time they ſent Fleets out of the *Red-Sea* to the extremities of *Æthiopia*, and imported quantities of precious goods from thence. Theſe conſiderations induc'd *Auguſtus*, when he ſent *Ælius Gallus* into *Arabia*, to extend his commiſſion to *Æthiopia*, and the *Trogloditick*, apprehending likewiſe that it was in the power of the *Æthiopians* to change or at leaſt ſpoil the courſe of the *Nile*. *Elmacin* in his Hiſtory of the *Saracens*, tells us that in the
A.D. 1104. *Hegyr.* 482. time of *Muſtancer*, Calif of *Ægypt*, the waters of the *Nile* being very low, and conſequently *Ægypt* threaten'd with a famine, that Prince ſent *Michael* Patriarch of the *Jacobites* with great preſents to the King of *Æthiopia*, with a requeſt, that he would open the Sluces of the *Nile*; which being granted, the *Nile* roſe three cubits in one night. *John Cantacuzene*, who quitted the Empire of *Con-*
A.D. 1360. *ſtantinople* for a monaſtery, tells us in the Hiſtory of his Reign, that the Sultan of *Ægypt* endeavour'd to keep a good correſpondence with the *Jacobites* who were eſtabliſhed towards the head of the *Nile*, for fear they ſhould take a fancy to turn the courſe of that River. The famous *Portugueſe Alphonſo d'Albuquerque* had the ſame extravagant fancy to turn the courſe of the *Nile* into the *Red-Sea*, to revenge himſelf of the Sultan of *Ægypt* who interrupted his trade to the *Eaſt-Indies*.

Arabia was a Country of great Commerce in the time of the *Romans*. *Aden* before-mention'd had in its harbour at the ſame time Ships from all parts of the World. The *Gerrheans* and the *Mineans*, ancient Inhabitants of *Arabia*, formerly carried their Spices by land to the Frontiers of *Paleſtine*. *Azotus*, according to [d] *Pomponius Mela*, was the Staple Port of the *Arabians* upon the *Mediterranean*. There cannot be a better account of the Merchandiſes of

[b] Pliny lib. 6. cap. 29. [c] Strabo lib. 17. [d] Pompon. Mela. lib. 7.

of *Arabia*, than by [c]*Moſes* himſelf who liv'd ſo long amongſt them. The Prophecys of *Pſalm* 71, the Preſents of the Queen of *Sheba* to *Solomon*, and thoſe of the three wiſe Men to our Saviour; and what *Ezekiel*, *cap.* xxvii. *v.* 21, 22, *&c.* ſays of their traffick with the *Tyrians* in Spice, Gold and precious Stones, are all authentick accounts of the Richneſs of their Merchandiſe. The *Arabians* had all the qualities of the God *Mercury*, for they were not only addicted to Commerce, but ſtealing; they are naturally courageous, and it muſt be reckon'd amongſt the moſt wonderful events that ever happen'd amongſt mankind, that a handful of people of that country ſhould partly by Valour, and partly by Enthuſiaſm, eſtabliſh perhaps a greater Empire than that of *Rome*, and in much leſs time. The Conqueſt of that Country by *Seſoſtris* was in order to draw a Canal from the *Red-Sea* to the *Nile*. It is doubtful who began this great work, but it is certain that *Ptolomy Philadelphus* compleated it. This Canal had its opening at the City of *Coptos*. *Auguſtus* ſent *Ælius Gallus* into *Arabia*, who tho' he did not conquer it, being deceived by *Syllæus* Intendant of the *Nabathæans*, yet made ſuch an Eſtabliſhment for the *Romans*, that in one Port, *Albus Portus* (*White-Haven*) they rais'd no leſs than 25 *per Cent.* duty upon all commodities enter'd there. *Aden*, mention'd before, was afterwards called *Portus Romanus*.

The *India* Trade was ever reputed the moſt ancient, the moſt honourable, and the moſt conſiderable of any in the world; all Nations complain'd that it was expenſive, yet none ever willingly quitted it. (The Reader may have obſerv'd what *Pliny*, quoted in a former Diſſertation, ſays of it.) It having been ever the moſt favourite Branch of Trade to all Nations and Princes that have made any figure in the world, I hope the Reader will not be diſpleas'd with the following ſhort Hiſtory of it.

It is plain the ancient *Ægyptians* had a great Commerce with the *Indies*, that *Ptolomy Philadelphus* did not begin, but reſtore this Trade. It is not credible that the *Phœnicians*, who navigated to the extremities of the weſtern Ocean, who carried on a Land-

[c] Gen. ii. 11, 12.

trade to *Syria* and *Meſopotamia*, and to the Frontiers of the *Indies* by Sea, who according to the Prophet *Ezekiel*, *cap.* xxvii. 15. had eſtabliſhed Colonies in the *Perſian* Gulf, call'd by their own names, *Tyrus* and *Aradus*, ſtopt ſhort, without puſhing their Trade to the *Indies*. *Taprobana*, which was always acknowledged to be in the *Indies*, worſhipped *Hercules* the God of the *Phœnicians*; a ſign that the *Phœnicians* had been amongſt them. *Mela*, *Pliny* and *Capella* ſpeak of the *Seres*, the ſame people with the *Chineſe*, as being very ſhy and diffident in their manner of dealing, ſo as neither to ſpeak nor be ſeen by the ſtrangers with whom they traded, yet as being juſt and honeſt. Time humanized them a little.

One certain ſign that Commerce had been well eſtabliſhed between the *Indies* and the Eaſtern Coaſt of *Africk*, is, that the *Portugueſe* when they had doubled the *Cape of Good Hope*, found at *Mozambick* and *Melinda* skilful Pilots uſing Aſtronomical Inſtruments, Geographical Charts, and Compaſſes. *Arrian* in his *Periplus* of the *Erythræan* or *Red-Sea*, tells us that before the *Ægyptians* had penetrated into the *Indies*, or the *Indians* come into *Ægypt*, the Port called afterwards *Arabia Fœlix* was the Staple for the Merchandiſe of both Countries. The ſame Author deſcribing the *Perſian* Gulf, names two famous Ports, *Apologus* and *Ommana*, to which great Ships brought from the *Indies* Copper, Horns, precious Wood, and from whence were exported Pearls, purple Stuffs, Robes, Wine, Dates, Gold, and Slaves. The *Indies* were very little known to the *Greeks* before the time of *Alexander* the Great. They treated the voyage of *Viambalus* to the *Indies*, related by [f] *Diodorus*, as a Fable. *Alexander* himſelf, from a vain-glorious Spirit unworthy of him, exaggerated the ſtrength and ſtature of the *Indians*, and endeavour'd to impoſe upon Poſterity, by monuments of an enormous ſize, that he erected in ſeveral places. The *Greeks* who follow'd his Army, in this matter follow'd likewiſe his example. *Nearchus* who commanded *Alexander*'s Fleet, and *Oneſicrates* his Intendant-general of Marine, have both left relations of the State of the *Indies* at that time, which [g] *Strabo* treats as fictions, mixt with ſome truth.

f Diodorus lib. 2. g Strabo lib. 17.

truth. *Pliny* made an Abridgment of the Journal of *Oneſicrates*, taken from *Juba*, and tells us that after the Navigation of *Oneſicrates*, the common Courſe was from the Promontory of *Syagros*, (thought to be what we call Cape *Fartak*) to *Patalus* in the mouth of the *Indus*; that afterwards the Courſe from Cape *Syagros* to *Zigeros* was found more ſafe and ſhort. The *Indian* Fleets which carried the *Roman* Trade, went out in the month of *July*, and came back in *December*. We have obſerv'd already that *Ptolomy Philadelphus* reſtored the *Indian* Trade to *Ægypt*. *Strabo* reports upon the faith of *Poſidonius*, that in the Reign of *Ptolomy Euergetes*, ſecond of that name, there was found in the *Arabick* Gulf a veſſel with an *Indian* half dead in it. This *Indian* told them that miſtaking their Courſe, the Crew all except himſelf were dead of Hunger: this *Indian* however ſerved as a Guide for thoſe whom King *Ptolomy* ſent to the *Indies*. By this ſtory it would ſeem, that the *Indian* Trade had been neglected in *Ægypt* for the ſpace of 140 years. *Strabo* likewiſe tells us, that when *Ælius Gallus* was Governour of *Ægypt* under the Reign of *Auguſtus*, a Fleet of Merchants from *Alexandria* ſail'd into the *Red-Sea* by the *Nile*, that he himſelf ſaw 120 Veſſels ſail out of *Myos-Hormos*, (the Port of Mice, before mention'd) to *India* and *Æthiopia*, from whence they brought back very rich Commodities; and that under the Reigns of the *Ptolomys*, there were hardly twenty Ships that ſailed quite out of the *Arabian* Gulf. The *Romans*, not only from Luxury but Intereſt ariſing by the profit of this Trade, afterwards encouraged it very much; by which the *Indians* came to know the power of *Rome*, and ſent Embaſſadors to *Auguſtus*. The Inhabitants of *Taprobana* in the *Indies* at that time were ſo ignorant of Navigation, that they ſteered their Courſe by the flight of Birds, who they reckon'd would fly to the neareſt coaſt. *Pliny* tells us that this Iſland was diſcover'd under the Emperor *Claudius*, by a *Libertus* of *Annius Plocamus* being caſt upon that coaſt by a Tempeſt. The Inhabitants, informed by this *Libertus* of the power of the *Roman* Empire, ſent Embaſſadors to *Claudius*, to ask his Friend-

ſhip: theſe Ambaſſadors inform'd the Emperor of their Commerce with the *Seres*, a more Eaſtern People, whom they deſcrib'd as gentle, but unſociable. The two *Indian* Merchants caſt by a ſtorm on the coaſt of *Germany*, carried firſt to the King of the *Suevi*, and preſented by him to *Metellus Celer*, then Proconſul of *Gaul*, has occaſion'd a great many reaſonings about the Courſe they muſt have ſteer'd; ſome imagining that they might have come by the Northern Sea of *Tartary* through the Straits of *Waigates*, and ſo into the *German* Ocean. M. *Huet* has a ſhort way of explaining all this matter, by ſuppoſing that the barbarous People among whom they were caſt, called them by what name they pleaſed, taking any Nation whom they knew nothing of to be *Indians*. Under the Reign of the Emperor *Antonine*, the *Roman* Trade flouriſh'd very much, not only the *Indian*, but that of the *Mediterranean* and Weſtern Ocean. *Ammianus Marcellinus*, about *U. C.* 1044, *A. D.* 294. ſpeaks of the great Trade that was carried on in the Reign of *Conſtantius* at *Batne*, a City built by the ancient *Macedonians*, &c. of a great Fair they held there in the beginning of *September*, where Merchants purchaſed the Commodities of the *Indies*, and of the Country of the *Seres* or *Chineſe*. Thoſe Merchandizes were tranſported by Caravans through *Perſia*, and others which came from the *Perſian* Gulf, and were tranſported afterwards into the *Euxine* Sea, went up the *Euphrates* from whence the Town of *Batne* was not far diſtant. *Firmus* having ſeiſed upon *Alexandria* under the Emperor *Aurelian*, carried on the *Indian* Trade, and by it no doubt acquir'd thoſe great Riches of which *Vopiſcus* ſaith he was poſſeſs'd. About this time Merchandiſing came to be a more honourable profeſſion amongſt the People of Quality in *Rome*.

There are a multitude of Cities of Trade reckon'd up by the Geographers, particularly by *Ptolomy*. *Alfragan* who lived *A. D.* 800, *Cherif Edeſſi*, under the title of the Geographer of *Nubia*, later than *Alfragan* 350 years; as for the Cities in general, with or without Commerce, if we believe *Strabo*, *Pliny* and *Plutarch*, there are about 5000 only in that part of *India* which was conquer'd by *Alexander*.

Benjamin

Benjamin of *Navarre*, a *Jew* mention'd before, has wrote a relation of his voyage, which contains ſeveral curious things intermixed with ſome Falſhoods. *Marcus Paulus* a *Venetian* ſays that in his time, about the 13th Age, the Commerce on the Coaſt of *Malabar* was very inconſiderable. *Mario Sanudo* a *Venetian*, who lived about the 14th Age, a Man full of zeal for the recovery of the Holy Land, and the deſtruction of the Sultan of *Ægypt*, tells us, that the greateſt part of his Revenues aroſe from the Trade of Spice and other *Indian* Goods. He names the two principal Ports in the *Indies*, *Malabar* and *Cambaya*; that the Cuſtoms paid to the Sultan were about the third of the value of the Goods; he would have been more ſurprized at the cuſtoms of *India* Goods in our time; he obſerves that the Spices brought by Land-carriage were much better than thoſe which came to *Ægypt* by Sea. In the Hiſtory of the *Moluccas*, there is mention made of a *Venetian* Ship ſeen in the *Eaſtern* Seas, bound from *Manillia* to *China*, which conſequently muſt have doubled the *Cape of Good Hope*.

Smarcanda[×] the Capital City of *Tranſoxiana*, the *Maracanda* of the Ancients, ſituated beyond the *Oxus*, was formerly a famous place of Traffick, where the *Chineſe*, *Tartar*, *Perſian* and *Indian* Merchants reſorted. This City was the Seat of the Empire of *Tamerlane*. The *Turkiſh* Conqueſts, and the Trade of the *Portugueſe*, have diminiſhed the Commerce of that place. *Smarcanda* had eclipſed *Bogar* or *Bokara*, which was not far diſtant from it, ſituated on the North of the River *Oxus*, in 39 degrees of Northern Latitude; it was formerly the Capital City of all that Country, and is now in the poſſeſſion of the *Usbecks*; there is a deſcription of it by *Anthony Jenkinſon* in *Hackluit*'s Collection; it was poſſeſſed of great Trade, and the native Place of *Avicenna*, as *Hera* was that of *Mircond* Author of the Oriental Hiſtory wrote in the *Perſian* Tongue. *Hera* is one of the chief Cities of *Choroſan*, famous for the Induſtry of the Inhabitants, and great reſort of Merchants. *Candachar*, an ancient and populous City ſituated in the Province of the ſame name, was formerly the Repoſitory of the *Indian* and

Perſian

× Read Samacandra. Langwith.

Perſian Goods, but the Commerce of it is weakened ſince the Navigation of the *Cape of Good Hope*. *Cabul*, Capital of a Province of the ſame Name, was a famous place for the Spice Trade; the Inhabitants of that Country are called by *Ptolomy* **Caholitæ*; it was formerly the Seat of ſome *Indian* Kings: But no Country exceeded the *Taprobana* of the Ancients, called by the *Nubian* Geographer *Sarandib*, *Serlandive* in *Teixera*, and *Serandine*, and the People *Serandini*; according to † *Ammianus Marcellinus*, its Trade conſiſted in Pearls, precious Stones, Cinamon, Musk, Civet, Silk, and Ivory.

The Geography of the extremities of the *Indies* was little known to the Ancients. They were inhabited, according to their Accounts, by three different Nations, the Eaſtern *Scythians*, the *Seres*, and the *Sinæ*. The Eaſtern *Scythians* are now the *Tartars* Northward of *China*. The *Seres*, Inhabitants of the Northern parts of *China*; and the *Sinæ* Inhabitants of the Southern. The oriental *Scythia* or *Cathay*, *Caracathay* or *Black Cathay*, is that Country which the *Arabian* Geographers and the Scriptures call *Gog* and *Magog*. The Oriental people in general went almoſt all by the name of *Seres* among the Ancients. They were famous for their Juſtice in Commerce, but extreme ſhyneſs to ſtrangers. They expoſed their Goods with the Price mark'd upon them, then retir'd; the Merchants came, left the price which they would give upon the Goods, and likewiſe retir'd: the *Seres* returning, carried off either their Goods or the Money as they liked beſt. *Euſtathius*, who relates this, adds, upon the faith of *Herodotus*, that the *Carthaginians* traded after the ſame manner with ſome people beyond *Hercules's Pillars*. The *Seres* were famous among the Ancients for their Manufacture of Silk. Under the name of *Sinæ* or *Thinæ* the Ancients comprehended not only the Southern *Chineſe*, but the Inhabitants of *Tunquin*, *Cochinchina*, *Pegu* and *Siam*. The *Sinæ* or ancient *Chineſe* were not ſo unſociable as the *Seres*; they were great Navigators, and much addicted to Trade: They owned the *Indians* as their Maſters

* Ptol. Aſiæ cap. 18. † Amm. Marcel. lib. 22.

ſters in Arts and Sciences. *Confutius* himſelf acknowledges that he learn'd his Philoſophy from the *Brachmans*; and both the *Indian* and *Chineſe* Erudition came from the *Ægyptians*. *Arrian*, in his *Periplus* of the *Erythræan* or *Red Sea*, has ſet down the principal Merchandiſe that came from the *Indies*, which are ſome of the ſame brought at this day. Before the time of *Auguſtus* the common courſe to the *Eaſt-Indies* was by the *Red Sea*, of which Navigation *Pliny* gives a very exact Deſcription. It does not appear that the antient Geographers had any notion of the Courſes which the moderns have try'd by the Strait of *Waigats* and *Nova Zembla*. The Ancients had ſtrange opinions concerning the Geography of the Northern part of *Aſia*, they believed that the *Caſpian* Sea was a Gulph of the *Scythian* or Northern Ocean of *Aſia*, that thoſe two Seas were join'd by a Channel large enough for the Paſſage of Ships, and this after a plain Teſtimony of *Herodotus* to the contrary.

It is probable that there was ſome Commerce by Land between the Northern part of *Aſia* and *Europe* anciently as well as now, between *Muſcovy* and *China*. There was an old Road to *China* by *Smarcanda*,× mention'd before, ſituated beyond *Oxus*, by which River *Smarcanda*× carried on it's Trade to the Weſt over the *Caſpian* Sea, and from thence up the *Volga* to the Northern Countries of *Europe*. If one conſiders that paſſage, it ſeems poſſible to go generally by Water-carriage from *China* to *Spain* without entring into the Ocean, *viz.* from the Eaſt by the *Oxus*, the *Caſpian* Sea, the *Volga*, which might be join'd to the *Tanais* by a Canal of ſix *German* Leagues, then by the *Tanais* entring into the *Euxine*, and from thence to the Straits of *Gibraltar*. *Strabo* points a ſhorter Road ſtill by the *Caſpian* Sea, *viz.* turning towards *Albania*, and aſcendiug up the River *Cyrus*. *Seleucus Nicator*, according to *Pliny*, had deviſed a way to join *Aſia* to *Europe*, and the *Caſpian* Sea to the *Euxine* by a Canal from the *Cimmerian Boſphorus* to the *Caſpian* Sea. Time has much changed the diſpoſition of thoſe places, and the *Oxus* is almoſt drain'd by Channels which the neighbouring Inhabitants have made for watering their Grounds. The

Strabo lib. 2 Plin. lib 6. cap. 2.

× Read Samacandra. Langwith.

The paſſage by *Cabul* ſtretched Southward by a neighbouring River, which fell into the *Indus*, and from thence into the *Indian* Ocean. The Commerce between *Perſia* and *India* went by *Candachar*, called ſo from *Alexander* who built it, or more probably from the *Candarians*, a people near it. That Road is unfrequented ſince the Commerce between *Perſia* and *India* by Sea. The Caravans of *Iſpahan* and *Agra* go ſtill by the way of *Candachar*, as likewiſe the Trade of *Mingrelia* the antient *Colchis*.

But, to return from this Digreſſion: The *Roman* Trade flouriſhed much under the time of *Auguſtus*, but was not improved under *Tiberius*. Hiſtory only acquaints us that his Fleet went up the *Elbe*, he having carried his Arms as far as the Banks of that River. *Caligula*, an extravagant Prince, prepared himſelf a Triumph for an imaginary Conqueſt of *Britain*, and carried ſome of his Gallies by Land to *Rome*, for an Expedition that ended in gathering Shells upon the Sea-ſhore. He equip'd afterwards ſome Ships neither for Trade nor War, but in order to fly out of *Italy*, upon the News of a Revolt in *Germany*. He was ſo far from benefitting Trade, that he did it a great Injury, and brought *Rome* in danger of a Famine, whilſt he collected from all parts an infinite number of Ships for the Conſtruction of ſome great Work betwixt *Baiæ* and *Puzzola*. [a] *Suetonius* ſaith that *Druſus*, the Father of the Emperor *Claudius*, was the firſt who navigated the Northern Ocean, which is not true; for *Auguſtus* had ſent Ships there before, as * *Pliny* tells us. And *Velleius Paterculus* mentions a Fleet that ſailed up the *Elbe*, when *Tiberius* the Brother of *Druſus* commanded in theſe Quarters, which Fleet came back laden with all ſorts of Merhandize. It was *Druſus* who join'd the *Rhine* to the *Iſſel*, by a Ditch from him called *Foſſa Druſiana*.

The Emperor *Claudius* was the firſt after *Julius Cæſar*, who invaded *Britain*: his Fleet is celebrated [b] by *Seneca* the tragick Poet. *Pliny* writes, that in his triumphing over *Britain* he enter'd the *Adriatick* in a Ship of an enormous Bulk. He conquered a part of

a Sueton. in Claud. * Plin lib. 2. cap. 67. b Seneca Octav. Act. 1.

of *England*, and the *Orcades*, and left the ſirname of *Britannicus* to his Son. *Veſpaſian*, under his command, ſubdued the Iſle of *Wight*. He was ſo great an Encourager of Commerce, that he charged himſelf with all the Sea-riſque of ſuch Veſſels as carried Corn to *Rome* in the Winter time: He augmented and repaired the Port of *Oſtia*, built a *Pharos* or Light Houſe, whereof the Foundation was the Ship of *Caligula* before mentioned, which brought the great Obelisk from *Ægypt*: It was under the Reign of *Claudius* that *Corbulo* join'd the *Rhine* to the *Meuſe* by a Canal twenty three Miles long. *Nero* never thought of the Sea, but as a means to eſcape into *Ægypt* when his Affairs grew deſperate. *Britain* under his Reign had like to have ſhaken off the *Roman* Yoke. The apprehenſion of *Nero*'s Jealouſy made *Antiſtius Vetus* lay aſide his Deſign of joining the *Rhine* and the *Moſell* by a Canal. *Galba*, *Otho* and *Vitellius*, *Nero*'s Succeſſors, had hardly time enough to ſettle in their Government, and leſs to enrich themſelves by Trade. *Veſpaſian* coming from the Eaſt to take Poſſeſſion of the Empire, thought it of the utmoſt Importance for his Deſign to ſeize upon *Alexandria*, as the Key of *Ægypt* and the Magazine of *Rome*. He ſent *Agricola* into *Britain*, who almoſt ſubdued it, and govern'd it with great Prudence. *Tacitus* aſcribes to *Agricola* the Diſcovery of the *Orcades*, and *Thule*, which that Author diſtinguiſhes from the *Orcades*, telling us that *Agricola* ſubdued the *Orcades*, but only diſcover'd *Thule*. He is miſtaken in both; for other Hiſtorians aſcribe the Conqueſt of the *Orcades* to the Emperor *Claudius*; and *Pomponius*, who lived in his Reign, reckons their number. *Thule* was known in the time of *Ptolomy Philadelphus*, ſince *Pythias* of *Marſeilles*, who lived in his time, had made a Deſcription of it, which is cited by *Strabo*.

It does not appear that there were any new Diſcoveries made in Trade under the Emperors *Titus*, *Domitian*, and *Nerva*; but **Trajan*, a Prince ambitious of Glory, deſcended to the Mouths of the *Tigris* and *Euphrates*, and went upon the Ocean, where having ſeen a Veſſel trading to the *Indies*, he had thoughts of outdo-

* *After* An. Dom. 100.

ing *Alexander* by the Conqueſt of thoſe Countries, but wiſely gave over the Project by the reflection of the difficulty of preſerving ſuch diſtant Provinces. The *Pharos* of *Caietta* and the Port of *Terracina* were repaired by the care of the Emperor *Antoninus Pius*. He, after the manner of *Auguſtus*, inforced the obſervation of the naval Laws of the *Rhodians*. There is mention made, in a Deciſion of the Juriſconſult *Javolenus*, who lived under the Reign of that Emperor, of a *Britannick* Fleet commanded by *Seius Saturninus*, called their *Archigubernus*, which perhaps had been eſtabliſhed for the Commerce of that Country, and to keep them in Subjection. His Succeſſor *Antoninus Philoſophus* was a great Encourager of Trade, for the Benefit of which he took care of the reparation of the Highways. He put off the repreſentation of Pantomimes till late Hours, on Market Days; and *Ariſtides* the Orator his cotemporary affirms Traffick to have flouriſhed very much in his time, both in the Mediterranean and in the Ocean. The Emperor *Pertinax* applied himſelf in his Youth to a gainful Trade practiſed by his Father, who judging him fit for a better employment had a mind to turn his Education another way; the Son was obſtinate in purſuing ſo profitable a Trade (which was a ſort of Merchandiſe of Wood) by which he acquir'd the name of *Pertinax*. He carried the ſame genius for Trade into the Government, but exerciſed it by Miniſters. The Emperor *Severus* was very intent upon procuring plenty in *Rome*, and ſettling peace in all the Provinces of the Empire, particularly in *Britain*, having caſt an Intrenchment from one Sea to the other, which ſeparated the barren from the fruitful part of the Iſland. It was with a View to Commerce that in returning from his Expedition againſt the *Parthians* he paſſed through *Ægypt*, informing himſelf particularly of the Advantages which *Rome* might draw from that Country. Altho' his Son *Caracalla* travelled through the ſame Country, and ſeemingly upon the ſame Motives, yet Revenge appears to have been the cauſe of the great Maſſacre which he made at *Alexandria*; wherein nevertheleſs he had ſo much regard to the Merchants, that he left them in

Security.

Security. *Alexander Severus*, a ſage and virtuous Prince, encouraged Trade at *Rome* itſelf, by moderating the Cuſtoms. This Emperor ſeems to have been the firſt who incorporated the ſeveral Trades of *Rome* into Companies with their particular Privileges; aſſigning them Protectors out of their own Companies, and Judges to decide their Suits. *Maximinus* traded himſelf with the *Goths* in the Product of his own Eſtate in *Thracia*, the Place of his Nativity, whither he retired to withdraw from the unjuſt Domination of *Opilius Macrinus*. The Emperor *Aurelian* conſidered the Importance of the *Ægyptian* Trade, regulated the Prices of Commodities which came from that Country, as well *Indian* as native; and to facilitate the Tranſportation, he took care of the Navigation of the *Nile* and the *Tiber*; and to make the common people feel Plenty, he encreaſed the Weight of Bread without augmenting the Price.

The barbarous People of the North being ſenſible how neceſſary a naval Power was to carry on their Deſigns, endeavoured in this to imitate the *Romans*. The *Goths*, when they attacked the Empire firſt with an Army of 320000 Men, had a Fleet of 2000 Ships (*Zoſimus* ſaith 6000) built at the Mouth of the *Iſter* in the *Black Sea*; which were moſt part deſtroyed in the *Archipelago* by Peſtilence or War. The *Arabs*, under the Empire of *Conſtans*, appeared in the *Mediterranean* with a Fleet of 1700 ſail.

Firmus, who ſeiz'd upon *Ægypt* in the Reign of *Aurelian* (by whom he was vanquiſhed) was ſo far praiſe-worthy, that he encouraged Trade, and particularly the *Indian*, very much in that Country. *Saturninus* in the ſame Enterpriſe had the ſame fate. The Hiſtorians of that time quote a Letter of the Emperor *Hadrian*, wherein he reckons the principal Manufactures of *Ægypt* to be Glaſs, Paper, and Linen Cloth.

The Emperor *Probus*, equal in merit to any of his Predeceſſors, had the peace of the Empire very much at heart. He had a mind to divert the Labour and Induſtry of his Subjects from War to

Agriculture and Trade; and in purſuance of that deſign, employed his Army always in ſome uſeful Work. What was ſo profitable to the Empire became fatal to the Emperor, by a Conſpiracy of the Soldiers, who were impatient of this fatigue, and could not bear the Reſtoration of ancient Diſcipline. He enlarged the Channels of Rivers, and particularly of the *Nile*, to make them more commodious for Navigation. The Commerce of *Rome* muſt have ſuffered under the Empire of *Diocletian*, by the Revolt of the *Britons*, begun by *Carauſius*, and continued by *Alectus*. *Carauſius* had been entruſted with the *Britannick* Fleet, to repreſs the Pyracies of the *Franks* and *Saxons* in the Channel; he acquitted himſelf like a valiant, but not like an honeſt Man; for he converted the Prizes to his own uſe. He afterwards uſurped the Title of Emperor, invaded *England*, and was kill'd by his Aſſociate *Alectus*. The Trade of *Rome* had like to have ſuffered another great Stroke by an Inſurrection in *Ægypt*, excited by *Achilleus*: But he was kill'd, and *Diocletian* re-eſtabliſhed Commerce in that Country. About this time the *Saxons* began to be known to the *Romans*, by the Pyracies and Ravages they made on the Coaſts of *Gaul* and *England*, and their peopling ſome part of the ſame Coaſts. The Affairs of Religion and War took up the Emperor *Conſtantine* ſo much, that he had not Time to think of Trade, in which the Foundation of *Conſtantinople* made a very great Revolution; the Veſſels of *Alexandria* carried now their Goods thither, as they did formerly to *Rome*. This new Capital was peopled at the Expence of *Italy*, which this new Plantation exhauſted. *Conſtantinople*, by its Situation, naturally invited the Emperors to think of Trade: accordingly we find in the *Theodoſian* and *Juſtinian* Code the Intereſt of Trade very well provided for. After this the Incurſions of the *Goths* and ſome other barbarous Northern Nations, ſo diſordered the Affairs of the *Roman* Empire, that they thought rather of their own Preſervation, than of enriching themſelves by Commerce. After the *Goths*, the *Arabians*, Diſciples of *Mahomet*, erected a new Empire more formidable to the *Romans* than the Power of the *Goths*:

The

The *Ægyptians*, weary of the *Roman* Government, ſubmitted to the *Saracens*; and the City *Caire* was built *Anno Dom.* 984, which proved a Rival to *Conſtantinople* in Trade; notwithſtanding *Conſtantinople*, under the protection, and by the advantage of an happy ſituation, carried ſtill on a great Trade. *Benjamin* of *Navarre*, a *Jew* abovementioned, tells us he ſaw a great Concourſe of Merchants from all Parts of the World there; this was near the twelfth Century; about this time *Bagdad* in *Perſia* being ſituated near the Frontiers of the *Indies* came to be a place of great Commerce, the *Indian* Goods being carried from thence to *Conſtantinople*. The *Greeks* and *Latins* being mightily delighted with the taſte of *Cloves*, made ſome of the *Greek* Emperors have a mind to conquer the Country where they grew.

Syracone and *Saladine* his Son having extinguiſhed the Caliphate of the *Saracens*, eſtabliſhed the Government of the *Mammelucks* in *Ægypt*, and renewed the *Indian* Trade in that Country; the Militia of the *Mammelucks* depended upon Traffick for young Boys, which they purchaſed in *Circaſſia* and the other Provinces of *Colchis* about the *Palus Mæotis*, and ſeveral other places of that Country; this obliged the Sultans of *Ægypt* to treat with the Emperors of *Conſtantinople* for a permiſſion to ſend a few Ships into the *Black-Sea*, for that Trade.

There were many excellent Laws made for the encouragement of Trade by the *Grecian* Emperors, but the Emperor *Conſtans* was he that ſignalized himſelf moſt in this particular; he declared himſelf Protector of the Mariners, he defended them from vexatious Suits, exempted them from publick Offices and Taxes, and granted them many other privileges. He was ſeconded in this by *Julian*, who had then only the Title of *Cæſar*; by his care the Commerce of *England*, almoſt ruin'd by the Pyracies of the Barbarians, was re-eſtabliſhed; he repaired and augmented the number of veſſels that carried Corn from *England* to *Gaul*.

The *Romans* were reduced to the laſt extremity by the eruption of the *Goths*, and the taking of their City by *Alarick*. Amongſt

ſeveral

ſeveral Tyrants that aſpired to the Government at the ſame time, there was one *Attalus*, who endeavoured to ſtarve *Italy* by ſtopping their Convoy of Proviſions from *Africa*; he ſail'd towards the Coaſt with a Fleet of 3700 Veſſels of all kinds: his naval Preparations were not more ſurprizing than his quick and ſhameful Retreat; for he returned to *Carthage* with only one Ship, having fled without landing in *Italy*, or ſtriking one ſtroak.

A. D. 468. The Emperor *Leo* rigged out a Fleet of 1100 Sail, which bid fair for re-eſtabliſhing the *Roman* Power at Sea, had it not been burnt by *Genſerick* upon the Coaſt of *Africk*, by the Treachery of *Baſilisk* the Emperor's General and Brother-in-law.

The *Roman* Fleets, during their Commerce and Command at Sea, had their ſeveral ſtations and departments; the moſt conſiderable was the *Alexandrian* Fleet, under which was comprehended the ſhipping on the *Red-Sea*; the ſecond was the *African* Fleet, for ſupplying *Rome*, and afterwards *Conſtantinople*, with Corn; the third was the Eaſtern Fleet, the principal ſtation of which was at *Seleucia*, a City of *Syria* on the River *Orontes*. This Fleet had ſeveral other leſſer Squadrons depending on it. They had a fourth Fleet of forty Sail in the *Euxine* Sea. There is a fifth Fleet mention'd in the Code, appointed for the Guard of the Treaſures. It does not appear that they had any particular Fleet for the *Spaniſh* Trade.

Rome could not maintain it's Dominion over ſo many Provinces without Squadrons ready equipt in the great Rivers of the Empire, which are ſet down in the *Notitia Imperii*.

The Emperors gave a very ſpecial protection to all Mariners employ'd in the Service of the Government. The fifth Title of the thirteenth Book of the *Theodoſian* Code regards their intereſt only. The ninth Law of that Title protects them not only from perſonal injuries, but all ſorts of violences and concuſſions ordinary and extraordinary, Inconveniencies, Inquietudes; and decrees that they ſhould enjoy a full ſecurity. This Law was inſerted in the *Juſtinian* Code. It was provided by another Law under pain

of

of death, that none ſhou'd divert the Ships of Seafaring People againſt their will to other uſes than thoſe for which they were appointed. There were other Laws of the Emperors *Gratian*, *Valentinian*, and *Theodoſius*, confirming thoſe Privileges for ever, and forbidding all Judges and Magiſtrates under pain of death to give them the leaſt diſturbance. The Emperors *Valentinian*, *Theodoſius* and *Arcadius* exempted them from all Taxes, to which at the ſame time they ſubjected Merchants without any exception. It has been obſerved before that the *Roman* Laws gave particular exemptions to ſuch as built Ships, or traded in Corn: they were raiſed to the dignity of Knights by *Conſtantine* and *Julian*; and by another Law of *Valens* and *Gratian*, a Senator might be admitted into the Company of Mariners. As they were honoured and protected by great privileges, ſo their Lands were in the nature of Fiefs, for which the Poſſeſſors were obliged to do perſonal ſervice at Sea. That obligation upon the lands did not preſcribe or come into diſuſe, but by fifty conſecutive years of Exemption. They were bound ſo ſtrictly to thoſe perſonal ſervices, that they could not take the Goods of private perſons aboard till the Government was firſt ſerv'd. There were Laws by which they were obliged to keep Ships of an uſeful Size. The Government on preſſing occaſions could command the ſervice of the veſſels of private Proprietors, as well as their own.

The ancient *Nundinæ*, or Fairs of *Rome*, were kept every ninth day; which cuſtom continued under the Emperors. Afterwards the ſame privileges were granted to the Country Markets; which was at firſt under the power of the Conſuls. For the Emperor *Claudius* was obliged to ask the privilege of a Market for ſome of his own grounds, from the Conſuls. This power was at laſt lodged in the Hands of the Emperors.

This is a ſhort Hiſtory of Navigation before the invention of the Needle; when and by whom that diſcovery and improvement was made, is ſomewhat uncertain: it is older than ſome people have

have imagin'd. Mr. *Paſquier* in his moſt excellent Book *des Recherches de la France, lib.* 4. *cap.* 35. has proved the Compaſs to have been in uſe in the time of St. *Lewis*, who came to the Crown *An. Dom.* 1226. He quotes ſome verſes of *Hugues de Bercy*, who liv'd in the time of St. *Lewis*; which, becauſe they give an ample deſcription of it, I have ſet down. They are in his *Bible Juyot.*

After he has compared the Pope to the Pole-Star, he goes on,

Mais ceſte eſtoille ne ſe muet,
Un Art ſont qui menter ne puet
Par vertu de la Mariniere
Un Pierre, Laide, & Noiriere,
Ou le fer, volontiers ſe joint,
Et ſi regardent le droit point
Puis que l'aiguille l'a touchie
Et en un feſtu l'ont fichie,
En lieu le mettent ſans plus,
Et li feſtus le tient deſſus:
Puis ſe tourne, la pointe toute
Contre l'eſtoille, ſi ſans doute
Que Japer rien ny fauſſera
Ne Maronniers, n'en doubtera.
Quand la nuict eſt obſcure & brune,
Qu'on ne voit Eſtoille, ne Lune,
Lors font à l'aiguille allumer,
Puis ne peuvent ils s'égarer:
Contre l'eſtoille va la pointe,
Perce ſont li Maronniers cointe
De la droitte voye tenir:
C'eſt un ars qui ne puet mentir:
Là prennent la forme, & le molle,
Que celle Eſtoille ne ſe crolle,

Moult

Moult eſt l'eſtoille belle, & claire:
Tel deuroit eſtrè le Sainct Pere,
Clercs deveroit eſtre, & eſtable.

There *Bercy* calls the Loadſtone the Mariner's Stone, as the principal inſtrument for ſteering their Courſe. That an iron Needle being touch'd with this Loadſtone turns towards the Pole-Star, ſo that Mariners in the darkeſt night by the help of a Candle, having fitted their Compaſs, can judge of their Courſe. There is a Particularity curious enough in their Compaſs, which was thus, they join'd three or four ſtraws one above another, and fix'd the Needle upon them, and letting them ſwim in water, mark'd where the Needle turn'd.

A

DISSERTATION

Concerning the Doſes of Medicines given by Ancient Phyſicians.

THE Knowledge of the value of ancient Weights and Meaſures is very neceſſary for the right underſtanding of the writings of the ancient Phyſicians, and I hope it will not be unacceptable to the Students of the Profeſſion, if I give a few inſtances of the uſe of the Tables in computations of this kind: at the ſame time I hope they will excuſe the imperfections of this Eſſay, compos'd in haſte upon a ſubject that really deſerves to be conſider'd with more attention.

Hippocrates divided the *Drachma* (which I will ſuppoſe to be the *Attick*, except where he mentions another) into 6 *Oboli*, according to the uſual manner of reckoning in *Greece*; and no doubt in imitation of him, *Celſus* divides the *Denarius*, which was always ſuppoſed equal to the *Drachma*, into 6 parts.

The learned and accurate Dr. *Hooper*, Biſhop of *Bath* and *Wells* has obſerv'd that the Phyſicians made their Preſcriptions by *Drachmas*, not according to the Standard Weight, but by the current Coin of their time; he ſuppoſes indeed the *Denarius* to have been equal to 64 Grains; according to my computation, it is only

62 $\frac{11}{13}$; perhaps he is in the right. There is ſome ſmall difference between us in the *Engliſh* Weights, for he aſſumes a different proportion of the *Engliſh Averdupois* Pound to the *Troy* Pound, from that which is ſuppoſed in the Tables of this Book; it is allowed that the *Roman* Ounce is equal to the *Averdupois* Ounce, and conſequently, the *Roman* Pound conſiſting of 12 Ounces, and the *Averdupois* of 16, the *Roman* Pound muſt be according to both reckonings $\frac{3}{4}$ of the *Averdupois* Pound, but he makes the proportion of the *Averdupois* Pound to the *Troy* Pound, 175 to 144, perhaps a more accurate proportion than mine. According to Dr. *Wibert*, whom Sir *Jonas Moor* quotes as very accurate, it is only as 17 to 14, and conſequently the *Averdupois* or *Roman* Ounce to the *Troy* Ounce is as 51 to 56; according to the Biſhop, there are in the *Roman* Ounce 437,5 *Troy* Grains, according to the computation of the Tables 437 $\frac{1}{2}$, of which the ſeventh part, *viz.* the *Denarius*, is equal to 62 $\frac{11}{13}$. The *Engliſh* Phyſicians make uſe of *Troy* Weight after the following manner:

Grains				
20	Scruple			
60	3	Drachm		
480	24	8	Ounce	
5760	288	96	12	Pound

The *Paris* Pound conſiſts of 16 Ounces, of which the Ounce is equal to 472,5 *Engliſh Troy* Grains. The Phyſicians reckon to their Pound 12 of thoſe Ounces, conſequently their medical Pound is equal to 5670 *Troy* Grains, and leſs than ours by 90 Grains; and their Ounce leſs by 7 $\frac{1}{2}$, and their *Drachm*, which is the eighth part of their Ounce, is leſs than ours by $\frac{11}{16}$ of a Grain. But they reckoning 576 Grains in their Ounce, makes ſtill a greater difference in the quantity of the Grain, for 105 of our Grains make 128 of theirs. This ſhort account of the *French* medical

Weights, (tho' they are not ancient,) is not foreign to our purpoſe. See Biſhop *Hooper*'s Treatiſe of Weights and Meaſures.

In the following computation of the Doſes of ancient Medicines, I ſhall make uſe of the Weight of the *Denarius* and *Drachma* as Coins, both ſuppoſed equal to 62 $\frac{11}{13}$ *Troy* Grains. The ſixth part of this, or the *Obolus Atticus*, and likewiſe the ſixth of the *Denarius* uſed by *Celſus*, is equal very near to 10,4 Grains. Sometimes *Hippocrates* mentions the *Æginæan* Weight, which is bigger than the *Attick* in the proportion of five to three.

I ſhall begin with a ſhort account of *Hippocrates*'s manner of preſcribing, who indeed very ſeldom mentions the Doſes of his Medicines: perhaps becauſe they were commonly prepared and adminiſtred by the Phyſicians themſelves, or that the Sons of the Art were ſufficiently inſtructed in theſe things, and the Doſes were likewiſe to be different according to the ſtrength and other circumſtances of the Patient; yet this is ſomewhat ſurprizing, becauſe his Purgative Medicines are generally very rough and ſtrong, ſuch as *Hellebor*, not only the black but the white: *Elaterium* or the juice of the wild Cucumber; *Cnidian* Grains, or the Berries of the *Mezerium*; *Peplus* and *Peplium*, both Species of the *Tythimalus* or the greater *Spurge*. Beſides thoſe Purges, there were the *Thapſia*, the juice of the *Hippophaæ*, which is ſuppoſed to be a ſort of *Rhamnus*; *Coloquintida*, *Scammony*, *Magneſian Stone*, *Cnicus a carthamus*; *le Clerk* mentions likewiſe a ſort of purging white *Poppy* as a Medicine of *Hippocrates*.

Thoſe purging Medicines, as ſaid before, are often mentioned without naming the Doſes; thus in an inflammation of the Lungs, when the ſpitting is ſuppreſſed, [a]he orders after the ſixth, ſeventh or ninth day, to take white *Hellebor*, *Thapſia*, freſh *Elaterium*, of each equal parts; and to make the Patient vomit, but with a prediction of the great danger of the Patient. [b]In a vehement pain of the head, the juice of the *Thapſia* in warm water for a Vomit, without mentioning the Doſe.

'He

[a] De morbis lib 1. [b] Ibid.

× Read Hippophaes. Langwith.

[c]He orders *Scammony* in bilious caſes, *Hellebor* in defluxions of the Head, white *Hellebor* in a *Dropſy*; but when he mentions *Hellebor* without any addition, it is to be underſtood of the black *Hellebor*. He orders *Cummin*, and *Carrot* Seeds or *Seſeli* to be mixt with *Hellebor*, but with the *Peplium* the juice of the *Laſer*, or *Aſſa fætida*.

[c]In ſome places, he mentions the Doſes particularly of *Elaterium*, which he orders in a woman's caſe, the weight of an *Attick Obolus*, which is about 10 ½ Grains in a *Cyathus*, that is ſomewhat more than 2 Ounces of Wine.

For the expulſion of a dead *Fœtus*, he orders a *Pugil* of black *Hellebor*, and the quantity of a bean of *Myrrh* in a draught of ſweet Wine. It is ſurprizing to ſee Drugs of that force ordered in ſo great and uncertain Doſes; but when they were given for vomiting as well as purging, the ancient Phyſicians did not reckon this of ſo great importance, for they reckon'd that a greater Doſe wrought quicker, and came up ſo much the ſooner.

[d]He gives as far as thirty *Grana Cnidia*, or Berries of the *Mezerium*. It ſeems by his manner of ordering outward Medicines, that the inward Doſes of them were known to the Sons of the Art; for his Style often runs thus, As much of ſuch a Drug as makes one, two, three Potions; thus in Lotions in women's caſes he orders two potions of *Hellebor* macerated in two *Cotylæ* or *Heminæ* of water: a *Cotyla* or *Hemina* is a little more than our half pint of Wine-meaſure. For the ſame purpoſe he orders ſixty *Grana Cnidia*, or *Mezereum* Berries macerated in Oyl and Honey, by which it would ſeem that thirty of them was an inward Doſe.

For the ſame purpoſe, one Doſe or Potion of the *Cneorus* (a Remedy taken likewiſe from *Mezereum*) macerated in an *Æginæan Hemina* of *Hydromel*, or Honey and Water. The *Æginæan Hemina* muſt be according to the proportion of the *Talent*, larger than our half pint, or about ⅓ of a Pint. ×

Immediately afterwards he orders for the ſame purpoſe one Potion of *Scammony*, macerated in *Hydromel*, or an *Attick Hemina* of

[c] Lib. de Superfœtatione. [d] De natura muliebri.

× I wonder why the Doctor calls it Cneorus, and not Cneorum: also why he calls it a remedy taken from the Mezereon, for if it is taken from thence it is only the leaves of it. Laſtly. 2ly! why not the root. NB. Arluttz of Does call it Cneorum p. 325. lin. 5. Tis Latter part of this 2 or 3 lines, D. Askes.

of Raiſin-water; where the change of the Meaſure is very remarkable, and it ſeems very unaccountable to be ſo exact in the quantity of liquor, where a ſmall error was of little concern, and to be ſo looſe in the Doſes of powerful Medicines. If I were allowed to gueſs at the reaſon of this proceeding, I ſhould believe that the Medicines being prepared by the Phyſicians themſelves, and the lotions or fomentations by the Nurſes; he thought it was much more neceſſary to be exact with the one than the other; and you will find through his whole Writingss that he is very preciſe and exact in ordering alimentary things; and likewiſe it is not improbable, but that he concealed the Doſes of his Medicines from all others but the Sons of the Art.

He is very nice in diſtinguiſhing the different qualities of his Purges; he tells you that *Hellebor* is a better Purge than the *Peplium*, but the *Peplium* was better againſt Wind. He ſeems to have been the firſt, who divided Purges into *Hydroticks*, Purgers of Bile, *&c.*

[e]I think there is one ſort of Remedy which he uſes in Dropſies, *viz.* the water of the *Hydropicks*, which he ſaith is a Remedy for the Diſeaſe.

[f]There is mention made of μάννα or *Manna*, not as a purging Medicine; it is applyed externally.

The next thing of which the Doſes ought to be nicely determined are *Opiats*, but tho' he ſpeaks of ſuch Medicines as procure Sleep, and eaſe Pain, he doth not determine their Doſes; he names the μήκων, and μηκώνιον, by which he underſtands the Poppy and the juice of it. [g]He ſpeaks both of the white and the black Poppy as aſtringents, but ſaith the black *Poppy*, or that with the black ſeed, excells moſt in that quality. [h]In another place he reckons the *Poppy* amongſt the Spices. [i]Amongſt the *Opiats* may be reckoned the *Mandragora*, *Hyoſciamus*, *Henbane* ſeed, the one he preſcribes to melancholy people only with this caution, that it ſhould not

[e] Lib. de internis affectionibus. [f] Lib. de natur. muliebri. [g] Lib. de ratione victus, &c. [h] De internis affectionibus. [i] De locis in homine.

not be given in ſo great a Doſe, as to bring madneſs, the other to be taken in the meaſure of a *Concha*, which is the ſame with the *Oxybaphum*, above ½ of a Pint, adding that the madneſs which it induces will be taken off by Aſs's Milk. He preſcribes *Opium* and Milk to prevent abortions, till the Patient is quick. *Cantharides* are another Medicine of which the Doſe muſt be very nicely determin'd, he preſcribes them both outwardly and inwardly, [k] five of them in a *Peſſary*, cutting off their heads and feet, mixt with *Myrrh*, *Incenſe* and *Honey*. [l] Three *Cantharides* the ſame way prepar'd given in a quarter of pint of water in a *Dropſy*. [m] Four of them in a quarter of a pint of white Wine in one of the kinds of *Jaundice*. [n] As for *Cliſters* he ſpecifies them as he doth his Purges, ſome for purging off *Pituite* or *Phlegm*, and others for purging off *Bile*. In ſome he determines the quantity of the liquid, in others not; as for example, one for purging off *Bile* is after this manner, Of the juice of the *Laſer*, as much as makes one Potion or Doſe, half a *Drachm* of *Elaterium*, of *Coloquintida* a *Drachm*, theſe ingredients diluted with Honey, Oyl, and Sea-water in which Bran was boiled; he gives great quantities of *Salts* in his *Cliſters*, an *Acetabulum* of common Salt, or ten *Drachms* of *Nitre*.

The *Laſeris Succus*, which he ſpeaks of, is the ſame with our *Aſſa fœtida*; by reaſon of the great quantities ſometimes preſcribed, a *Drachm* is but a very moderate Doſe, to expell a dead *fœtus*: he uſes a *Drachm* of *Laſeris Succus*, and an *Acetabulum* (which is above three Spoonfulls) of the juice of *Leek*.

Another of his *Cliſters* is compoſed of a *Hemina* of Wine, that is above half a pint, ⅓ *Hemina* of Oyl, and as much of Honey, of *Nitre* the bigneſs of a Sheep's ancle; this ſhews that it was kept in great pieces, for he often makes uſe of that expreſſion to determine the quantity of *Nitre*.

[o] Another *Cliſter* is thus compoſed, two *Heminæ* of white Wine, half a *Hemina* of Honey, *Ægyptian Nitre* torrified a Quadrant, a *Hemina*

[k] De morbis mulierum lib. 1. [l] Ibid. [m] De ratione victus, &c. [n] De intern. affection. [o] De morbis mulierum lib. 1. [*] De natura muliebri. [p] De internis affectionibus.

mina of the expreſſed juice of the wild *Cucumber*; this in an *Anaſarca*. This *Cliſter* is very ſtrong, and in our meaſures runs thus,

Take of white Wine fourteen Ounces, three *Drachms*; of Honey ½ Pint, one Spoonful; of the expreſſed juice of the wild Cucumber ½ Pint, two Spoonfuls; of *Ægyptian Nitre* three Ounces.

The *Quadrans* here meant he expreſſes in other places to be the quarter of a *Mina*, which is ſomewhat leſs than our Pound, taking the value of the *Drachm* as above; the whole Liquor of the *Cliſter* will make above a Quart and five Spoonfuls.

[g] In a *Tetanus* to move the belly he proceeds by this method, firſt with a *Suppoſitory* of ten inches long of Honey and Bull's Gall, then with a *Cliſter*; that proving ineffectual, he makes uſe of a Smith's Bellows, and afterwards applies a *Cliſter*.

Q. Whether Wind might not be drawn out of the Bowels by a Machine contrived after the manner of an Air Pump?

[r] Blood-letting is another ſubject of enquiry. *Hippocrates* let great quantities, and open'd ſeveral veins at a time; he ſaith that it ſhould be done with broad Lancets, or as it is in the original, Swords, in order to make a large Orifice: from which one may gueſs that the manner of opening a vein at that time, was by ſtabbing or pertuſion, as it is performed in horſes. He tells you that in applying of Cups the Scarification ought to be made with crooked Inſtruments. He often has the expreſſion of letting blood to a great quantity, without mentioning the Weight or Meaſure. He let blood often *ad deliquium*, till the Patient fainted. [f] He tells you of one Patient in a complaint of his Bowels, who was let blood till he had ſcarce any left, and that he was perfectly cured; by this one would imagine his Diſeaſe had been an inflammation of the Bowels.

He was extremely careful in ordering the kind and quantity of Dyet, eſpecially in acute Diſeaſes; in ſuch the Dyet which he ordered was a *Ptiſan* of Barley. *Ptiſan* properly was a *Pollen*, Paſte, or

g De morbis lib. 1. r De medicis lib. f Lib. 5. Epidemicorum.

or Jelly of boil'd Barley, which he order'd to be mixt in certain quantities of Water, allowing his Patients ſeldom above two *Cotylæ* or *Heminæ*, that is little more than a Pint, once, ſeldom twice a day. *Ptiſans* were made of other Grains after the ſame manner, and adminiſtred in due quantities in proper caſes.

Becauſe his management of acute Diſtempers conſiſted chiefly in ordering proper Diet and Liquors, I ſhall give ſome few inſtances of the Liquors which he uſed on theſe occaſions. Moſt commonly he does not weigh but meaſure his Drugs.

[t] A *Chœnix* of *Attick* Figs, and boil them in two *Congii* of Water, ſtrain it, and drink half a *Hemina* at a time.

I. e. ℞ 1 ½ Pint of *Attick* Figs, and boil in 14 ½ Pints of Water, ſtrain it, and drink about a quarter of a Pint at a draught.

[t] Half of *Hemichœnix* of decortiated or ſhelled Barley, in four *Heminæ* of Water, till it boils over twice or thrice.

℞ ½ of a Pint of ſhelled Barley in a Quart and four Spoonfulls of Water.

He often preſcribes *Hydromel*, which is made of Honey, one part, and Water eight: and Vinegar added made an *Oxymel*.

His decoction of *Lint-ſeed*, which he often uſes, is made after this manner:

[u] An *Acetabulum* of *Lint-ſeed* in ten *Heminæ* of Water boil'd to one half, and let ſtand till the Liquor grows ſenſibly mucilaginous.

℞ Somewhat more than three Spoonfulls of *Lint-ſeed* boiled in three Quarts of Water into 1 ½ Pint.

[x] Of the *Achillean* or great Barley dried and decortiated, the quantity of a *Hemina*, after it is well waſhed, boil it in a *Congius* of Water into one half, and give it to drink cold.

℞ A little more than half a Pint of great Barley, boil it in ſeven Pints of Water into one half.

[t] De natura muliebri. [u] De morbis lib. 3. [x] Ibid.

[y] Of *Æthiopick Cummin* ½ of a *Hemina*, boil it in three *Congii* of Water in a Veſſel cloſely luted, into a third part, let it be drunk cold in every kind of Fever.

℞ A large Spoonful of *Æthiopic Cummin* in about eleven Quarts of Water, into a third part.

The *Cummin* here bears a ſmall proportion to the water, and is certainly only meant to correct the crudity of it as a Spice, ſo it is only a manner of giving Water in a Fever.

[y] A *Hemina* of *Ptiſan* boil'd in a *Congius* of Water, into one half, to the ſtrain'd Liquor add a little *Apium*, let it be drunk cold.

℞ A quarter of a Pint of the *Ptiſan* of Barley in about ſeven Pints of Water boiled into one half.

The *Ptiſan* of Barley was prepared after this manner; the Barley was firſt ſteep'd in water till it ſwell'd, afterwards dried in the Sun, then beat till the husk was taken off, and ground; the Meal was boil'd in Water, and expoſed to the Sun, and when dry, ſhut up for uſe.

White Raiſins without the Stalks a *Hemina*, of Roots of *Pentaphyllum* bruis'd one handful, boil'd in twenty *Heminæ* of Water into one half.

℞ White Raiſins ſomewhat above half a Pint, of Roots of *Cinquefoil* bruiſed, one handful, boiled in eleven Pints of Water, into one half.

The white of four Eggs beat in a *Congius* of Water.

℞ That is ſeven Pints of Water.

He recommends this Drink as cooling and laxative.

[y] Ibid.

Half

℞ Half a *Choenix* of Barley Meal, and a *Pugil* of *Adianthus* in a *Congius* of Water.

℞ Three quarters of a Pint of Barley Meal, a *Pugil* of *Maiden-hair* in ſeven Pints of Water.

The Pulp of a ripe Cucumber without the rind in Water is recommended as an excellent Medicine both to quench Thirſt and provoke Urine.

Three handfuls of *Apium*, two *Pugils* of *Pulegium*, boil'd in ten *Heminæ* of Vinegar [*i. e.* ſix Pints] into one third part, mixt with Honey, and then to be drunk with Water, putting in one *Pugil* of *Adianthum*, is recommended as a Diuretick and Laxative.

This is an *Oxymel* to be mixt with Water.

He orders all the Liquors which are given to feveriſh Patients to be expos'd to the Air in a clear Night, and then to be drunk cool, except by ſuch as were inclined to a Looſeneſs. Theſe Decoctions are moſt of them to be found in his Book *de internis Affectionibus*.

There is one very ſtrange draught preſcribed for a ſhort-breath'd man, and ordered to be drank off at one draught; half a Gallon of *Hydromel* with a little Vinegar: this ſeems to be preſcribed by way of Exerciſe as well as Medicine, and it encreaſeth ſome Suſpicion that the Book *de internis Affectionibus*, as well as that *de Affectionibus*, was not writ by *Hippocrates*: but that is a conſideration I do not enter into, becauſe all the Books publiſhed in his name, are at leaſt wrote by the ancient Authors.

[a] *Hydromel* and Vinegar, three *Heminæ*, are given for a Vomit in bilious caſes.

Somewhat more than a Pint and a half.

[b] He orders ſometimes his Patient to eat Figs before his Vomit, and to vomit till he brings up the Figs, which come up laſt of all.

[c] There

[a] De affectionib. lib. [b] De internis affection.

[c] There is nothing more ſurprizing than the great quantities in which he preſcribes Milk. Aſſes Milk to be drank to the quantity of twelve *Heminæ*, and if the Patient can bear it, to ſixteen, that is from ſeven to nine Pints.

[d] He often orders that quantity of Aſſes Milk boil'd to purge his Patient, particularly in *Epilepſies*.

[e] He preſcribes Goat's Milk to the quantity of four *Heminæ*, or a Quart, with about $\frac{1}{3}$ of a Pint of *Hydromel*, and the ſame quantity of it with ten Grains of the juice of *Laſer*, or *Aſſa fœtida*, and ſome Honey, in an *Hepatical* Diſtemper.

[e] Two *Congii*, or above fourteen Pints of Cow's Milk in Diſeaſes of the Spleen. *Le Clerk* imagines that this quantity was not to be drank in a day; but I wonder that any man who had read *Hippocrates* could think ſo, becauſe he has ſeveral times the word τῇ δ' ὑστεραίῃ: [e] particularly he ſaith in one place, let him drink the next day eight *Heminæ* of Aſſes Milk with a little Honey, and if that cannot be had, three *Semicongii* or eleven Pints of Goat's or Cow's Milk. And in another place he ſaith, let him drink the next day a *Congius* or ſeven Pints of Aſſes Milk.

I have often thought that our preſcribing Aſſes Milk in ſuch ſmall quantities is injudicious, for undoubtedly with ſuch as it agrees with, it would perform much greater and quicker effects in greater quantities. I take it for granted that the Patients who drunk ſuch great quantities, took no other Food.

He was very nice in the choice and quantity of his Wine, moſtly white, but ſometimes what he called black, in ſome caſes ſweet Wines, and in ſome caſes auſtere. Sometimes he ordered a Patient a Cup of two *Heminæ*, or a full Pint of Wine, when going to ſleep.

[f] He preſcribes ſometimes very large Doſes of Powders, but very effectual for the intention, ſuch as of *Sulphur*, *Cardamum*, *Rue*, *Æthiopick Cummin*, each the quantity of a Bean, which will make very near a *Drachm*, to be taken in an *Aſthma*.

Another

c De ratione victus, &c. d Ibid. e De internis affection. f De Morbis mulier. lib. 1.

Another preſcribed in hard Labour: [f] Of *Æthiopic Cummin* as much as you can hold in three Fingers, of Anniſeed and *Seſili* as much as you can hold in five or ſix Fingers. I cannot tell what he means by ſix Fingers, unleſs it be to denote the different Proportions of the Ingredients. He orders in the ſame caſe the Pæony Root or Seed a *Concha* or about three Spoonfuls.

[g] He is no leſs exact in preſcribing the Exerciſes of his Patients, ordering ſome of them to walk eighty *Stadia* in a Day, which is about nine *Engliſh* Miles, which he divides after this manner, thirty *Stadia* in the Morning, thirty before Supper, and twenty after. I think this as neceſſary a Preſcription as any; and if Patients would be obedient, it might do more good than all the others.

A ſhort Account of the Preſcriptions of Celſus.

Celſus was a very cautious and ſparing giver of inward Medicines, he puts the ſtrength of his Cure in moſt caſes upon Diet, Bathing, Unction, Frictions, and Exerciſe.

[a] He vomits often only with warm Water, and rather in the Winter than Summer, chiefly People that are bilious, and fat rather than lean; great Eaters and ill Digeſters: [b] yet he gives the white *Hellebor* for a Vomit in one ſort of Madneſs, and the black for a Purge in another, without naming the Doſe. [c] He ſaith Vomits even repeated are not dangerous in *Hæmorrhagies*. He thought Autumn the propereſt Seaſon to give white *Hellebor*.

He

f De morbis Mulier. lib 1. g De inter. affect.

a Lib. 1. c. 3. Vomitus utilior eſt hyeme quam æſtate. nam tum & pituitæ plus, & capitis gravitas major ſubeſt. Inutilis eſt gracilibus, & imbecillum ſtomachum habentibus: utilis eſt plenis & bilioſis omnibus, ſi vel nimium ſe replerunt, vel parum concoxerunt.

b Lib. 3. c. 18. In triſtitia nigrum veratrum dejectionis cauſa, in hilaritate album ad vomitum excitandum dari debet. c Lib. 4.

He was no great Friend to Purging and Cliſters, and blames the Ancients for their too frequent uſe of them: You may ſee the Paſſage at large[d]. He was for mixing [e] *Aloes* with all Purges.

[f] As for *Opiats*, he ſeems to allow a Decoction of the *Poppy* or *Henbane* in Water, at leaſt by quoting the Example of other Practitioners.

[g] He condemns Blood-letting in Children, old Men, and Women with Child, but allowing at the ſame time many Exceptions from ſuch a general Rule. He names ſeveral caſes very pertinently, in which it was abſolutely neceſſary to let blood; gives proper Cautions againſt Accidents of pricking a Tendon or Artery: As to the Quantity, he ſaith the Vein ſhould be ſtop'd before the Patient faints; he orders bleeding from the ſame Vein the next Day: He gives one Precept about Bleeding which ſeems extraordinary, that when the Blood is good, which is to be judged by the colour, that immediately the Vein ſhould be ſtop'd; but he adds, that this is a Caution which a skilful Phyſician does not want, becauſe he knows the proper caſes before hand.

[h] He uſes the *Lactuca marina* and *Squils* as Diureticks in Dropſies.

[i] I don't find he gives the ſecond inwardly, but uſes the Decoction of it as a Fomentation. He mentions ſeveral other Diureticks beſides theſe.

[k] He preſcribes Milk in Conſumptions without naming the Doſe, and condemns it as a Poiſon in Head-aches, acute Fevers attended with Thirſt, or where the Urine is bilious.

[l] In Fevers he ſeems to approve raiſing the Sweat by cool Liquors, and tells you that after *Hippocrates* there was one *Petro* who covered up his feveriſh Patient with warm Cloths; and when the Fever

[d] Lib. 2 c. 12. [e] Ibid. Sed medicamenta ſtomachum fere lædunt, ideoque omnibus Catharticis Aloe miſcendum eſt.

[f] Lib. 3. c. 18. Quidam ſomnum moliuntur potui dando aquam in qua Papaverus aut Hyoſciamus decocta ſit.

[g] Lib. 2. c. 10. [h] Lib. 3. c. 21.

[i] Lib. 2. c. 31. Lib. 3. c. 22. Lac quoque, quod in capitis doloribus, & in acutis febribus, & per eas facta nimia ſitis, ſive præcordia tument, ſive bilioſa urina eſt, ſive ſanguis fluxit, pro veneno eſt: in phthiſi tamen, ſicut in omnibus longis difficilibuſque febribus, recte dari poteſt. [l] Lib. 3. c. 9. —— Et intra hæc omnis medicina erat.

Fever began a little to decline, gave them cold Water to drink till he provoked Sweat; if he did not sweat at first, he gave him still more cold Water till he obtain'd his purpose: When he was out of his Fever, he gave him Hog's Flesh and Wine: if he was not still quite cur'd, he purg'd him with Salt Water, and this was the whole of his Practice.

[m] He is very precise in prescribing his Exercises and Frictions, of which he describes the natural Effects with great Judgment. He prescribes from fifty Frictions to two hundred, according to the strength of the Patient; I suppose he means so many Strokes with the rubbing Instrument.

As for the Doses of his Medicines, they seem to be reasonable, except where the Text is corrupted: for Example.

A Confection against the Cholick.

[n] *Costi, Anesi, Castorei, singulorum* P. *denariorum* III. = dr. 3. gr. 7⅓.

Petroselini denariorum III.

Piperis longi & rotundi, singulorum P. II. = dr. 2. gr. 5.

Papaveris lacrymæ, junci rotundi, Myrrhæ, Nardi, singulorum P. VI *. = dr. 6. gr. 15. *quæ melle excipiuntur. Id autem & devorari potest, et ex aqua calida sumi.*

In this the Opium is about one seventh part of the solid Ingredients.

Against an Asthma.

Honey, Galbanum and Turpentine mixt, the Bigness of a Bean: but there follows after that a Receipt in which the Text must be corrupted.

Sulphuris

[m] Lib 2. c. 18. [n] Lib. 4 c. 14.

Sulphuris ignem non experti pondo & quadrans. = Pou. 1. Oun. 1. dr. 4. ſcr. 2. gr. 5½.

Abrotoni pondo in vini cyatho teruntur, = Ou. 10. dr. 7. ſcr. 2. gr. 5. *idque tepefactum ſorbetur.*

It's plain from the firſt Inſpection that ſuch a Quantity of either of the Ingredients cannot be given at once, far leſs out of two ſpoonful of Wine, therefore undoubtedly the numbers are omitted, and *Pondo* is only put at length as P. in other Receipts, and the * with the number wanting.

Antidotum Ambroſia nominatum, quod Zopyrus Ptolemæo Regi compoſuit.

Coſti, Thuris maſculi, ſingulorum P. V. * = dr. 5. gr. 12.
Piperis albi P. * = dr. 1. gr. 2½.
Floris Junci rotundi P. II. * = dr. 2. gr. 5.
Cinnamomi P. III. * = dr. 3. gr. 7½.
Caſiæ nigræ P. IIII. * = dr. 4. gr. 10.
Croci Cilicii P. * IIII = dr. 4. gr. 10.
Myrrhæ quam Staſtem nominat P. V. * = dr. 5. gr. 12.
Nardi Indici P. * V. = dr. 5. gr. 12.
Quæ ſingula contrita melle cocto excipiuntur: deinde ubi utendum eſt, id quod Ægyptiæ fabæ magnitudinem impleat in potione vini diluitur.

Catapotium ad ſomnum accerſendum.

Papaveris lachrymæ, Galbani, ſingulorum P. I. * = dr. 1. gr. 2½.
Myrrhæ, Caſtorei, Piperis, ſingulorum P. II. * = dr. 2. gr. 5.
Ex quibus quod Ervi magnitudinem habet, ſatis eſt devoraſſe.
Here the Opium is one eighth part of the Ingredients.

Cata-

Catapotium valentius ad Somnum.

Alterum ſtomacho pejus, ad ſomnum valentius, ex his fit, Mandragoræ P. *. *Apii ſeminis, item Hyoſciami ſeminis, ſingulorum* P. IIII. = * dr. 4. gr. $9\frac{1}{2}$. *quæ ex vino teruntur.*

Catapotium ad plurimos dolores, per ſomnum leviendos.

Silis, Acori, Rutæ ſylveſtris, ſeminis, ſingulorum P. I. * = dr 1. gr. $2\frac{1}{2}$.

Caſtorei, Cinamomi, ſingulorum P. II. * = dr. 2. gr. 5.

Papaveris lachrymæ, Panacis, Radicis Mandragoræ, Malorum aridorum, Junci rotundi Floris, ſingulorum P. II. * = dr. 2. gr. 5.

Piperis grana LVI. = ſcr. 2. gr. $2\frac{1}{2}$.

Hæc per ſe contrita; rurſus inſtillato ſubinde paſſo, ſimul omnia teruntur, donec craſſitudo ſordium fiat: ex eo paulum aut devoratur, aut aqua diluitur & potui datur.

The Opium is above a ninth part of the Ingredients, beſides the *Paſſum.*

Paſſum is a Wine made of dry'd Grapes, in all appearance not after our manner of making made Wines. It was ſtrong and ſweet.

Catapotium ad inducendum ſomnum, quod vulva dolens prohibuit.

Croci P. II. * = dr. 2. gr. 5.

Aniſi, Myrrhæ, ſingulorum P. I. * = dr. 2. gr. $2\frac{1}{2}$.

Papaveris lacrymæ, P. IIII * = dr. 4. gr. $9\frac{1}{2}$.

Cicutæ ſeminis P. VIII. * = Oun. 1. gr. $19\frac{1}{2}$.

Miſcentur, excipiunturque vino vetere; & quod lupini magnitudinem habet in tribus cyathis aquæ diluitur. Id tamen in febre periculoſe datur.

The Opium is a fourth part of the Ingredients.

Catapotium Athenionis ad Tuſſim.

Myrrhæ, Piperis, ſingulorum P. I. * = dr. 1. gr. $2\frac{1}{3}$.
Caſtorei, Papaveris lacrymæ, ſingulorum P. I. * = dr. 1. gr. $2\frac{1}{3}$.
Quæ ſeparatim contuſa, poſtea junguntur, & ad magnitudinem fabæ noſtræ, bina Catapotia mane, bina noctu dormituro dantur.

The Opium is a fourth part of the Ingredients.

It is ſtrange that the Quantity of the Doſe of an Opiat ſhould not be weighed as well as the Ingredients: it is often deſcribed by the bigneſs of a Bean, and there are three ſorts of Beans mention'd, the *Ægyptian* Bean, the *Roman*, and the *Lupine*. The *Ægyptian* Bean muſt have been very ſmall; for in the Mithridate, as deſcrib'd by *Celſus*, he determines the Doſe either by an *Ægyptian* Bean or by an *Ervum*, a ſort of a Vetch or ſmall Pea; beſides, the Bean muſt have been near round, becauſe it ſerves for the Model of a Pill; and it is a common Obſervation of Beans, the leſs, the rounder. The *Phaſeolus* or Kidney Bean is commonly call'd the *Roman* Bean, as well as the *French* Bean; but if the Bean were very ſmall in the *Catapotium Athenionis*, the Opium making the fourth part of the Ingredients, four ſuch Doſes in twenty four Hours would be a very large Quantity. A Doſe only of four Grains would make a Grain at a time, and therefore I am apt to think that there are ſome Ingredients wanting in the Compoſition. The manner of the Ancients is to aſſociate Opium, with other warm Ingredients.

Catapotium Heraclidis Tarentini ad Tuſſim & Somnum.

Croci P. I. * = dr. 1. gr. 2½.

Cinnamomi, Caſtorei, Papaveris lachrymæ, ſingulorum P. I. * = dr. 1. gr. 2½.

Piperis longi, Coſti, Galbani, ſingulorum P. * = dr. 1. gr. 2½.

The Opium is one eighth part of the Ingredients.

Colicæ Caſſii Medici.

Croci, Aniſi, Caſtorei, ſingulorum P. III. * = dr. 3. gr. 7½

Petroſelini P. IIII. * = dr. 4. gr. 10.

Piperis & longi & rotundi, ſingulorum P. V. * = dr. 5. gr. 12.

Papaveris lacrymæ, Junci rotundi, Myrrhæ, Nardi, ſingulorum P. VI. * = dr. 6. gr. 14.

Quæ melle excipiuntur: id autem & devorari poteſt, & ex aqua calida ſumi.

The Opium is about one eighth part of the Ingredients.

Adverſus difficultatem Urinæ.

Piperis longi, Caſtorei, Myrrhæ, Galbani, Papaveris lacrymæ, Croci, Coſti, unciæ ſingulæ. = dr. 7 gr. 17½.

Styracis, Reſinæ Terebinthiæ pondo ſextantes = Oun. 1. dr. 6. ſcr. 1. gr. 14½.

Mel Abſinthi cyathus. (ſomewhat above two Spoonfuls.)

Ex quibus ad magnitudinem fabæ Ægyptiæ mane, & cœnato dari debet.

The Opium is an eleventh part of the Ingredients, beſides the Honey.

Some Examples of the Manner of Preſcribing, and Doſes of Medicines, taken from Scribonius Largus.

Scribonius Largus makes uſe of the ſame Weights and Meaſures with *Celſus*. In the following Examples I ſhall take ſome Preſcriptions of ſeveral kinds, following the order of the Book, and reduce them to our Weights and Meaſures.

A Preſcription for a Snuff to be taken in a violent Head-ach.

Veratri albi, caſtorei, ſtruthii, quod eſt radix lanaria, piperis albi, ſingulorum ℔ P. I. *hæc contuſa tenuiter ſorato cribro tranſmutantur.*

℞ Of white Hellebor, Caſtor, Struthium, (which is a Root us'd by the Wool-dreſſers) white Peper, each one Drachm, 2½ Grains.

The *Struthium* is a Plant mention'd by *Dioſcorides*, *Columella*, *lib.* XI. *cap.* 11. who ſaith that the *Tarentine* Sheep ought to be waſhed with it. *Pliny*, *lib.* XXIV. *cap.* 11. ſaith that the Dyers made uſe of a Plant, in preparing their Wool, which the *Greeks* call *Struthion*, which he ſaith, *lib.* XXV. *cap.* 5. was good for Snuff. The Plant does not grow in this Country.

In Epilepſies,

Thymi albi * P. III. *ex aceti cyathis tribus, & mellis boni pondo uncia: ut dilutum jejunus bibat per dies quadraginta quinque, ſed quum biberit citatus ambulet millia paſſuum minime dudum.*

℞ Of white Thyme three Drams ſeven Grains, of Vinegar ſeven Spoonfuls, or a quarter of a Pint and a Spoonful, and of good Honey ſeven Drachms, ſeventeen Grains: The Patient to drink this in a Morning for forty five Days, walking faſt a Space, which wants an hundred and twelve paces of two *Engliſh* Miles.

The white Thyme is mention'd by *Gaſpar Bauhen Pinac. lib.* VI. §. 4. he ſaith that it is *grave olens*, ill-ſcented or ſtinking.

A Collirium *for an* Epiphora *or Inflammation of the Eyes from a watery Humour.*

Aloes Indicæ * P. IIII. *Croci* * P. II. *Opii* * P. I. *Gummis* * P. IIII. *Plantaginis ſucci cyathos tres.*

℞ Of *Indian* Aloes four Drachms ten Grains, Saffron two Drachms five Grains, Opium one Drachm 2½ Grains, Gum *Arabick* four Drachms ten Grains, Juice of Plantane ſeven Spoonfuls.

When *Gummis* is put by it ſelf, it means Gum *Arabick*, in the Author it is often wrote *Cummis* with a *c*.

A ſharp Collirium *to take Specks off the Eye, and againſt the Aſperity of the Eye-lids.*

Æris uſti * P. IIII. *Thuris Arboris Corticis* * P. IIII. *Ammoniaci Guttæ* * P. IIII. *Commis* * *pond.* IIII. *Teruntur ex aqua pluviali.*

℞ Calcined Copper, the Bark of the Incenſe Tree, clear Gum *Ammoniac*, Gum *Arabic*, of each four Drachms ten Grains.

Galen ſaith that the Bark of the *Thuriferus* Tree is more aſtringent than the Incenſe it ſelf.

A Remedy againſt Spitting of Blood and an obſtinate Cough.

* *Aluminis fiſſi* P. * VI. *Opii* P.* I. *aqua exigua Opium diluitur, miſcetur alumini ante trito; fiunt globuli ciceris amplitudinis: dantur jejuno ante cibum quaterni aut quini.*

℞ Of Alum ſix Drachms fifteen Grains, Opium one Drachm two Grains and a half. Let the Opium be diſſolved in fair Water, and mix the Alum powdered, make it up in Pills of the Bigneſs of Chicken Peas or Vetches, and let the Patient take four or five of them in the Morning faſting

A Remedy againſt an Aſthma.

Sulphuris vivi P. * I. *Nitri* P. * *ſelibra, abrotani quod tribus digitis comprehendi poſſit. Hæc contunduntur, & teruntur curioſe.*

℞ Live Sulphur one Drachm two Grains, of Nitre 31 Grains, Southernwood as much as can be held in three Fingers. Theſe

contun-

Quum opus eſt, dantur ex his cochlearia duo cum duobus cyathis aceti calidi jejuno. (The *libra* is to be taken away, and it muſt be read * S.

Ingredients muſt be powdered nicely, and two Spoonfuls of the Medicine given in ſeven Spoonfuls of warm Vinegar to the Patient faſting.

Tho' all Authors correct this Reading as I have done, yet I think it would be better read of a Pound than a *Denarius*; for the whole Compoſition as it ſtands will hardly make two Spoonfuls.

Another Medicine for the ſame Purpoſe, which the Author ſaith is good againſt a Palſy, Dropſy, or Diſeaſe in the Spleen.

Bryoniæ, id eſt albæ vitæ radicis P.* XII. *Iris Illyricæ* P.*XII. *Ammoniacæ guttæ* P* XII. *Aſparagi radicis* P* VI. *ſcillæ bulbi crudi ex interiore parte* P.* XII. *Tragacanthi* P.* VI. *Mel miſcetur contuſis & tritis donec ceræ mollis habeat temperaturam. Inde cum opus eſt datur* P.* I. *cum aquæ mulſæ cyathis tribus vel quatuor.*

℞ Of the Roots of white Briony, *Illyrian Iris*, Gum *Ammoniac* in clear drops, of each thirteen Drachms five Grains, Roots of Aſparagus ſix Drachms thirty two Grains and an half, of the inward part of Squill thirteen Drachms five Grains, or one Ounce, five Drachms, five Grains, Gum Tragacanth ſix Drachms, thirty two Grains and a half, or ſix Drachms, one Scruple, twelve Grains and a half. To theſe Ingredients bruiſed and powdered add as much Honey as makes the Conſiſtence of ſoft Wax. The Doſe is one Drachm, two Grains, drinking after it ſix or eight Spoonfuls of Hydromel.

Seve-

Several Catapotia.

A *Catapotium* is a general Name for a Medicine that is ſwallowed ſolid without being diſſolved, and moſt commonly made up in Pills.

A Catapotium *for a Cough with Spitting.*

Croci pondo unciæ, Myrrhæ P. ſextantis, Opii pond. quadrantis. Contunditur Crocum, præſcribatur, contuſæ Myrrhæ Opium admiſcetur aqua exigua dilutum. Poſtea adjicitur Crocum, & cum in unum bene mixta ſunt, finguntur pilulæ ervi magnitudinis: dantur in nocte ternæ vel quaternæ.

℞ Of Saffron ſeven Drachms, ſeventeen Grains, of Myrrh double the Quantity, of Opium triple. To Myrrh bruiſed add the Opium diſſolved in a little Water, afterwards the Saffron; after it is bruiſed and ſtrained, and made up in Pills of the Bigneſs of a ſort of Vetch, three or four of them in a Night.

What is remarkable in this Pill is, that the Opium is juſt one half of the Ingredients; the Pill can hardly be leſs than two Grains, conſequently the Patient takes a Grain of Opium at a time, three or four times in a Night.

A Catapotium *for a dry Cough.*

Myrrhæ, Piperis, Caſtorei, Galbani, Storacis, Opii, ſingulorum idem pondus. Caſtoreum & Pi-

℞ Myrrh, Peper, Caſtor, Galbanum, Storax, Opium, equal parts. Bruiſe and ſift the Ca-

per, contunduntur & cribrantur: deinde Myrrhæ ante tritæ cæteris contuſis æque admiſcentur. Ubi omnium unita: mortario facta eſt, melle deſpumato medicamentum comprehenditur: deinde formantur pilulæ viciæ magnitudinis. Dantur ternæ vel quaternæ in noctem.

ſtor and Peper, and with the reſt of the Ingredients Powdered, and Honey *q. ſ.* make Pills of the Bigneſs of a Vetch, of which three or four to be taken in a Night.

The Quantity of Opium is leſs in theſe Pills in the proportion of two to five.

Another Catapotium *for an old Cough.*

Styracis P. * VI. *Myrrhæ* P. * II. *& Victoriati, Opopanacis* P. * II. *Iris Illyricæ* P. * II. *Galbani* P. * II. *reſinæ terebinthiæ pon.* * V. *altercí Seminis* P. * I. *Nitri* P. * I. *Piperis Albi* P. * I. *Opii* P. * I. *Irim, altercum, piper contundere oportet & cribrare, nitrum mortario terere, & cetera pilo commiſcere, & poſtea hæc eis adjicere atque facere Catapotia magnitudinis fabæ. Inde terna vel quaterna in noctem dare ad inflationes in ipsâ diſtentione cum aquæ calidæ cyathis tribus.*

℞ Styrax ſix Drachms fifteen Grains, Myrrh two Drachms one Scruple and ſixteen Grains, (a *Victoriatus* is half a *Denarius*) Opopanax two Drachms five Grains, *Illyrian* Iris and Galbanum each two Drachms five Grains, Turpentine five Drachms twelve Grains and a half, Henbane ſeed, Nitre, white Peper and Opium each one Drachm two Grains and a half. The Iris and the Henbane Seed and the Peper muſt be pounded and ſifted, and the Nitre powdered in a Mortar, and the reſt of the Ingredients, being mixt with a Peſtle, muſt be added to it, and made up into the Bigneſs of a ſmall Bean, three or four of them to be taken in a Night.

The following Receipts are not tranſlated, but the Doſes are marked.

Paſtills *or* Lozenges *for a Cough.*

Myrrhæ Troglodytis pon. * VI, = dr. 6, gr. 15.
Croci P. * V. = dr. 5, gr. 12.
Opii P. * IV. = dr. 4, gr. 9.
Thuris P. * V. = dr. 5, gr. 12.
Altercı albi ſeminis P. IV. = dr. 4, gr. 9.
Apollinaris herbæ radicis corticis P. * IV. = dr. 4, gr. 9.
Contunditur hic cortex per ſe, & cribratur tenui cribro: deinde Crocum, poſtea Altercum, Myrrha, Thus, quibus miſcetur Opium pridie aqua maceratum: ſubinde aquæ exiguum adjicitur, donec fingi paſtilli poſſint pond * *victoriati* = half a *Denarius*, or ſcr. 1, gr. 11.

Altercus is the *Henbane*, *Apollinaris herba* a *Mandrake.*

Antidotos Hiera Paccii Antiochi ad univerſa corporis vitia, maxime Lateris, & ad Podagram.

Stœchados, Marrubii, χαμαίδρυος, quæ herba ſimiliaquercus folia habet, Agarici, Cucurbitulæ ſilveſtris, quam κολοκυνθίδα appellant, ſingulorum * P x. = dr. 10, ſcr. 1, gr. 4.
Opopanacis, Sagapeni, Petroſelini, Terræ mali, Piperis albi, ſingulorum * P. v. = dr. 5, gr. 12.
Cinnami, Nardi ſpicæ, Myrrhæ, folii, Croci, ſingulorum * P. IIII. = dr. 4, gr. 9.

In unum omnia ponderata contunduntur & cribrantur: præterea Opopanaces & Sagapenum, hæc enim mortario teruntur, adjecto melle tenui

tenui, id eſt, quam liquidiſſimo: deinde cæteris miſcentur, quæ & ipſa recipere debent tantum mellis, quantum ſatis erit ad comprehendenda, & continenda ea. Reponitur medicamentum vaſe vitreo.

Ad hoc * P. I. *vel victoriati datum, ex aquæ cyathis duobus frigidæ.* = dr. 1, gr. 2 ½, or ſcr. 1, gr. 11.

Terræ malum is the *Ariſtolochia*. The *Greek* words, which are ſtill preſerved in the receipt, is a great preſumption for the common opinion, that the Author wrote in *Greek*, tho' by his name he was a *Roman* by Birth. It ſeems the Tranſlator was not quite ſure of the meaning of ſome words.

Scribonius tells you that the Inventer of this Medicine got a great deal of money by it, that he did not divulge it in his own life-time, that *Scribonius* had found the Receipt in a Letter wrote to *Tiberius*, and that he never was able to procure the Receipt during the life of the ſaid Emperor.

Againſt Pain and Wind in the Stomach.

Palmarum * P. XI. = dr. 11, ſcr. 1, gr. 7.

Anethi * *pondo* IV. = dr. 4, gr. 9.

Croci * P. *duum, Git* * P. *duum, & Aſari* * P. *duum.* = dr. 2. gr. 4 ½.

Murti nigræ baccarum * *Pond.* IV. = dr. 4, gr. 9.

Juniperi grana numero viginti. Contunduntur ſeorſum omnia, & in unum miſcentur: deinde fiunt paſtilli * P. I. = dr. 1, gr. 2 ½, or ſcr. 1, gr. 11. *aliis victoriati.*

Dantur jejuno ex aquæ cyathis quatuor [about ten Spoonfuls] *aut ex Cretico muſto, quod eſt paſſi genus.*

Git is the *Melanthium* or the *Nigella*, the ſeed of which was reckon'd as a ſort of Pepper by the Ancients.

Paſtils *to be uſed in a* Cliſter, *in a Diſeaſe which the Author calls a Cancer in the Bowels.*

Chartæ combuſtæ cineris * P. XXX. = Oun. 3, dr. 7, gr. 13 ½.
Calcis vivæ * *pondo* XXIV. = oun. 3, ſcr. 2, gr. 18 ⅗.
Ἀρσενικὸν, *quod eſt Auripigmentum* * P. XII. = oun. 1, dr. 4, ſcr. 1, gr. 9 ⅓.
Sandaracæ * P. *ſex.* = dr. 6, gr. 24 ⅔.
Hæc trita vino conſperguntur, in quo roſa & lentes prius incoquuntur, ut poſſint fieri paſtilli * P. *duum aut unius.* = dr. 2, gr. 4 $\frac{8}{10}$, or dr. 1, gr. 2 $\frac{9}{10}$.

This Receipt, if I rightly remember, is in *Marcellus*, who has copied it from the Author. *Scribonius* ſaith it is blamed, but only by ignorant people, becauſe it is cauſtick.

A Remedy for the *Cholick.*

	Oun	Dr.	Scr.	Gr.		
Apii ſeminis P, ſelibram	5,	7,	1,	5 $\frac{5}{7}$	$\frac{1}{2}$	12,
Aneſi P. quadrantem	2,	7,	2,	2 $\frac{5}{7}$	$\frac{1}{4}$	6,
Caſtorei P. ſextantem	1,	6,	1,	12 $\frac{3}{7}$	$\frac{1}{8}$	4,
Myrrhæ P. quadrantem	2,	7,	2,	2 $\frac{6}{7}$	$\frac{1}{4}$	6,
Spicæ Nardi Indicæ P. ſextantem,	1,	6,	1,	12 $\frac{3}{7}$	$\frac{1}{8}$	4,
Opii P. quadrantem	2,	7,	2,	2 $\frac{6}{7}$	$\frac{1}{4}$	6,
Croci P. ſeſcunciam		7,	2,	15 $\frac{1}{7}$	$\frac{1}{8}$	3,
Piperis longi, pon. ſextantem	1,	6,	1,	12 $\frac{7}{7}$	$\frac{1}{8}$	4,
Piperis nigri ſextantem ſemunciam	2,	2,	0,	10 $\frac{6}{7}$	$\frac{1}{14}$	5,
Petroſelini P. ſextantem	1,	6,	1,	12 $\frac{3}{7}$	$\frac{1}{8}$	4,
Schœni P. ſeſcunciam		7,	2,	15 $\frac{1}{7}$	$\frac{1}{8}$	3,

Hæc omnia contuſa cribrata, melle Attico decocta miſcentur. Datur ex hoc medicamento quantum nux Abellana media patet, ex aquæ cyathis tribus calidæ.

I have ſet down in this long Receipt the true quantities reduced to our Meaſure, tho' the proportion of the Ingredients is ſufficient

ficient towards the making up of the Medicine, which are ſet down both in the Fractions of a *Roman* Pound and in Integers. It was a Receipt of the famous *Caſſius*, whom *Celſus* calls the moſt ingenious Phyſician of his Age. *Galen* has the ſame Receipt, but differing a little in the proportion of the Ingredients.

A Remedy againſt the Dropſy.

Vitis albæ Radicis * P. XX. = oun. 2, dr. 4, ſcr. 2, gr. 9.

Cocci Cnidii * P. IV. = dr. 4, gr. 9.

Scillæ bulbi cocti detracta exteriore parte * P. X. = oun. 1, dr. 4, ſcr. 1, gr. 9 $\frac{1}{2}$.

Myrrhæ * P. VIII. = oun. 1, gr. 18.

[a] *Cymini cyathis tribus,* [b] *Aneſi cyathis tribus,* [c] *vini Falerni ſextariis duobus,* [d] *paſſi ſextario uno. Præter myrrham, omnia contuſa, non cribrata, macerantur paſſo & vino, nocte & die: poſtridie colatur liquor, cui myrrha trita admiſcetur, a quo cyathus datus a balneo alternis diebus, ſingulis adjectis cyathis, donec profectus intelligatur.*

The Doſe is above two Spoonfuls every other day, adding as much till it has its effect.

The Medicine of Julius Baſſus *againſt the Cholick.*

Spicæ Nardi, Coſti, Piperis albi, Piperis nigri, Piperis longi, Myrrhæ, Opii, Apollinaris radicis, & Cinnami, Aſari, Acori, Thuris, Braſſicæ ſeminis, Caſtorei, ſingulorum * P. XII. = oun. 1, dr. 4, ſcr. 1, gr. 9 $\frac{3}{7}$.

Opopanacis * P. X. = oun. 1, dr. 2, ſcr. 1, gr. 4 $\frac{7}{9}$.

Stœchadis, Dauci, Amii, ſingulorum * P. XVIII = oun. 2, dr. 2, ſcr. 2, gr. 4.

Seſelis Cretici * P. XXIV. = oun. 3, dr. 0, ſcr. 2, gr. 18 $\frac{2}{3}$.

Mel Atticum miſcetur, datur non plus quam * P. *aut Victoriati.* dr. 1, gr. 2 $\frac{1}{2}$, or ſcr. 1, gr. 11 $\frac{1}{4}$.

Ceterum

[a] *Seven Spoonfuls.* [b] Idem. *two* $\frac{1}{2}$ *Pints.* [d] *one* $\frac{1}{2}$ *Pint.*

Ceterum prout cujuſque vires poſtulabunt, dummodo infra hoc pondus ex aquæ caldæ cyathis tribus [about ſeven Spoonfuls.] *in noctem ſecundum cœnam. Hæc potio etiam febricitantibus tuto datur: ſed cœliacis in ipſo dolore prodeſt.*

This *Julius Baſſus* was either Eſquire of the Body, or Phyſician in ordinary to *Nero*, as appears by an old Inſcription.

BASSUS NERONIS CÆSARIS CORPORE CUSTOS. NATIONE FRISIUS.

Ovilis lactis ſextario, = one Pint, five Spoonfulls.
Si quis adjiciat Cnici purgati * P. IV. = dr. 4, gr. 9.
Mollit & ventrem.
Quidam tribus Heminis vini = 1 ½ Pints.
Ut Aloes victoriati pondo, = ſcr. 1, gr. 11.
Vel idem pondus duobus tribuſve ſextariis vini [two or three pints] *& ita totum per partes aquæ mixtum bibunt. Videtur autem vinum vetuſtius, ventremque cum eo ſatis mollit. Facit autem Aloe per ſe Victoriati vel* * P = [ſcr. 1, gr. 11, or double that] *ex aquæ cyathis tribus* [ſeven Spoonfuls] *frigidæ vel calidæ perductæ.*

The Doſes of the *Aloes* ſeem to be very ſmall in theſe Infuſions, yet I believe the Medicine would attain its effect in being lenitive. The *Cnicus* or *Carthamus* is in quantity ſufficient.

Aloes victoriati pondus = ſcr. 1, gr. 11.
Colophoniæ victoriati pondus = ſcr. 1, gr. 11.
Una teruntur, adjicitur mellis quod ſatis eſt ad colligenda ea, datur ex aquæ calidæ vel frigidæ cyathis quatuor [about ſeven Spoonfuls of Water] *Hoc medicamentum ſtomachum non corrumpit.*

Purging Pills mightily commended by the Author for being grateful to the Stomach.

Colophoniæ * P. VIII. = oun. 1, gr. 19 ½.
Bdellii * P. *duum* = dr. 2, gr. 4 $\frac{2}{10}$.
Commis * P. *unius* = dr. 1, gr. 2 $\frac{8}{10}$.

Hæc

Hæc trita ſucco Lactucæ colliguntur, & finguntur pilulæ fabæ magnitudinis. Dantur paribus pilulis uſque ad ſeptem, prout uniuſcujuſcunque vires patiuntur.

Admirable Pills.

Colophoniæ * P. III. = dr. 3, gr. 7 ½.
Aloes * P. IV. = dr. 4, gr. 10.
Tragacanthi * P. *duum* = dr. 2, gr. 5.

Hoc pridie aquâ maceratur, poſtero die cæteris admiſcetur. Fiunt inde globuli fabæ magnitudinis. Dantur a tribus uſque ad ſeptem, prout cujuſque vires patiuntur. Stomachum nullo modo vexant.

For a Swelling and Pain in the Bladder, and for thoſe who have difficulty in paſſing of Urine.

Alterci ſeminis, Apii ſeminis, malvæ ſeminis, cucumeris edulis ſeminis purgati, ſingulorum * P. VI. = dr. 6, gr. 14 ⅞.
Amygdalorum dulcium purgatorum, nucleorum pineorum purgatorum, ſingulorum, * P. III. = dr. 3, gr. 7 ½.
Opii * P. I. = dr. 1, gr. 2 ½.
Croci * P. *unius & victoriati, paſſo contuſa conſperguntur.*
Datur hoc medi-Medicamentum * P. I. *ex paſſi cyathis duobus & aquæ totidem.* = dr. 1, ſcr. 1, gr. 14.

Some Examples of Preſcriptions taken out of Marcellus.

MArcellus lived under the Reigns of the Emperors *Gratian* and *Theodoſius*; he was an Empyrick, and a mere Collector of Receipts; he often copies them without changing the very circumſtantial

cumſtantial matters of fact related by the Author from whom he takes them. For example, when the Author ſaith he cured by ſuch Medicine, *Marcellus* ſaith the ſame thing of himſelf. [a] Deſcribing the Remedy of *Antiochus Paccius*, he tells you in the very words of *Scribonius* that he could never get the Receipt till after the death of *Tiberius*, tho' he had taken great pains to diſcover it. But for that very reaſon, that he is a mere Collector and Tranſcriber, he is the more uſeful to our purpoſe in diſcovering the compoſition and doſes of ancient Medicines, of which I ſhall give ſome Examples.

Some of the ancient Phyſicians are not very particular and exact in the Doſes of their purging Medicines, at leaſt in their Writings. I hope *Marcellus* in ſome meaſure ſupplies this defect in his thirtieth Chapter, where he ſpeaks of all Medicines of that kind.

Firſt of Lenitives.

*Mollit alvum, Nitri * ſemiſſis,* = ſcr. 1, gr. 11.

Mixtus cum Reſina Terebinthina, & Avellanæ nucis magnitudine devoratus.

Ovilis lactis ſextario ſi quis adjiciat = A Pint and five Spoonfuls.

Cuici purgati denarios quatuor = dr. 4, gr. 10.

Et diſcoctum ita ebibat, molliet ventrem.

Quidam tribus Heminis vini = 1 ½ Pint.

Adjiciunt Aloes denarii ſemiſſem, = ſcr. 1. gr. 11.

Et ita totum per partes aqua mixtum bibunt, ut molliant ventrem.

Solvit autem utiliter alvum ipſa Aloe per ſe victoriati denarii pondere = ſcr. 1, gr. 11.

Ex aquæ cyathis tribus vel frigidæ = ſeven Spoonfuls.

Vel calidæ epota.

Purgat

[a] Cap. 2. Fecit enim magnos quæſtus ex ea propter crebros ſucceſſus in vitiis difficillimis: ſed ne hic quidem unquam ulli vivus vivo compoſitionem iſtam oſtendit. Poſt mortem Tiberio Cæſari per libellum ſcriptum data eſt, & per eum in bibliothecis publicis poſita, venit in manus noſtras, quamvis nullo modo extrahere potuimus, quamvis omnia fecerimus, ut ſciremus quæ eſſet.

Purgat bene hæc compoſitio ventrem,
Aloes denarii ſemiſſis = ſcr. 1, gr. 11.
Colophoniæ denarii ſemiſſis = ſcr. 1, gr. 11.
Unà teruntur hæc, adjicitur mellis quod ſatis ſit ad colligenda ea. Datur ex aquæ callidæ vel frigidæ cyathis quatuor.

Colophoniæ denarii quatuor = dr. 4, gr. 10.
Bdellii denarii duo dr. 2, gr. 5.
Hæc trita lactucæ ſucco colliguntur, & finguntur pilulæ magnitudine fabæ, dantur a tribus pilulis uſque ad ſeptem, prout cujuſque vires patiuntur.

Colophoniæ denarios tres, = dr. 3, gr. 7½.
Aloes & Tragacanthi binos = dr. 2, gr. 5.
Hoc pridie aquâ maceratur, poſtero die cæteris admiſcetur: fiunt inde globuli fabæ magnitudine. Dantur a tribus uſque ad ſeptem.

Anguinei Cucumeris denarios VI. = dr. 6, gr. 15.
Semis ex aqua mulſa.

Veratri nigri Radicis ſemiſſis, = ſcr. 1, gr. 11.
Et ejus tertia portio pota ex vino paſſo.

Purgatio ventris quæ facit ad lumborum dolores, & ad omnium febrium moleſtias depellendas.

Scammoniæ * VIII. = oun. 1, gr. 19½.
Veratri nigri, Aneſi, Aphronitri, Nardi, Syriacæ, Caſſiæ, Cinnamomi, ſingulorum, denarios binos = dr. 2, gr. 5.
Dantur hæc trita & mixta cum aquæ mulſæ hemina.

Purgatio ventris altera ſic.
Scammoniæ * XII. = oun. 1, dr. 4, ſcr. 1, gr. 9.
Veratri nigri * XVI. = oun. 2, ſcr. 1, gr. 19.
Croci * V. = dr. 5, gr. 12½.
Myrrhæ * VII. = dr. 7, gr. 17½.

Cinnamomi * VII. = dr. 7, gr. 17, ⅓.
Panacis * VIII. = oun. 1, gr. 19 ⅓.
Piperis * V. = dr. 5, gr. 12 ½.
Aphronitri * VI. = dr. 6, gr. 15.
Trita hæc & in pulverem redacta, melle conſpargantur: datur ex his * I. S. *aquæ cyathis tribus.*

Aliud remedium ad ventris purgationem.

Uvæ paſſæ exemptis granis contuſæ * IV. = dr. 4, gr. 10.
Aneſi * VIII. = oun. 1, gr. 19 ⅓.
Elaterii, id eſt, Cucumeris in partes diviſi, loti, & ſiccati, * VII. dr. 7, gr. 17.
Veratri nigri * XVI. = oun. 2, ſcr. 1, gr. 19.
Cunilæ ſeminis purgati interiora * XII = oun. 1, dr. 4, ſcr. 1, gr. 9.
Hæ in pulverem redacta colliguntur, & ex aqua dantur quantum fabæ trita grana ſunt, ſuperque acetum cum melle mixtum bibitur.

Alia ventris purgatio ejuſdem effectus.

Scammoniæ * VIII.
Veratri nigræ * VIII.
Cucurbitæ ſylveſtris interiora * VIII. } = oun. 1, gr. 19 ⅓.
Aphronitri * VIII.
Iridis * VIII.

Nardi Syriacæ * V. S. *& victoriati partem tertiam* = dr. 5, ſcr. 1, gr. 3.
Myrrhæ idem pondus = dr. 5, ſcr. 1, gr. 3.
Ex his factus melle colligitur. Dantur ex medicamento hoc globuli quantum fabæ magnitudo eſt, ad denarios quatuor vel quinque, quibus devoratis acetum melle mixtum, ſuperdandum eſt.

Ad

Ad omnem febrium moleſtiam, &c.

Cucurbitæ ſylvaticæ interiores partes aridas quæ quaſi pluma ſunt *VI. = dr. 6, gr. 15.

Croci ac Panacis denarios ſenos, = dr. 6, gr. 15.

Marrubii ſucci * VIII. = dr. 8, gr. 19 $\frac{1}{7}$.

Glycyrrhizæ * IV. = dr. 4, gr. 9 $\frac{1}{7}$.

Piperis albi * VI. = dr. 6, gr. 14 $\frac{7}{10}$.

Piperis longi * VI. = dr. 6, gr. 14 $\frac{7}{12}$.

Stœchados * *ſex* = dr. 6, gr. 14 $\frac{7}{10}$.

Schœni floris * *quatuor* = dr. 4, gr. 9 $\frac{1}{7}$.

Malobathri * *tres* = dr. 3, gr. 7 $\frac{1}{3}$.

Paſſo colliquuntur trita hæc omnia, dantur ex his denarii ſinguli cum aquæ calidæ cyathis binis vel ternis.

Hiera ad reſolutum ſtomachum & rejicientem quodcunque ſumpſerit.

Aloes nigræ * V. = dr. 5, gr. 12 $\frac{1}{4}$.

Maſtiches * IV. = dr. 4, gr. 10.

Cinnami, Schœni floris, Malobathri, Nardi Syriacæ, Croci, Aſari, Xylobalſami, ſingulorum denarios ſenos. = dr. 6, gr. 15.

Hæc trita vel contuſa melle conſpargunter, & ita reponuntur, & quum opus eſt, ad modum fabæ cum Oxymelle dantur.

Purgatio quâ Coſmus Medicus frequenter uſus eſt.

Scammoniæ denarii victoriati ponderis partem unam = ſcr. 1, gr. 11.

Veratri nigri * I. = dr. 1, gr. 2 $\frac{1}{3}$.

Panacis * S. = ſcr. 1, gr. 11.

Ex melle conſparguntur hæc trita, datur ex his quantum nux avellana eſt, ex aquæ mulſæ cyathis quatuor. Globuli quoque ſupradicta

magnitudine ſicci, de hoc medicamento duo treſve dantur, jejuno vel poſt cœnam vorandi.

Confectio Salis Cathartici.

Scammoniæ uncias tres
Zingiberis uncias tres } = oun. 2, dr. 5, ſcr. 2, gr. 11 ½.
Petroſelini uncias tres

Salis Ammoniaci uncias quatuor = oun. 3, dr. 5, gr. 8 ½.
Maſtiches uncias duas = oun. 1, dr. 6, gr. 14.
Piperis albi ℔ I. = dr. 17, gr. 17.

Ita ut Scammoniam coquas, ut minus lædat. Coques enim ſic: mittes in paſtam, & deinde mittes in furnum, ut cum ea coquatur, & aliquantulum plus mittes, ut quum cocta fuerit, ad ſupraſcriptum veniat pondus, & quum refrixerit, tolles, & ſic omnia teres, & miſcebis, & ad quod volueris, manducandum in convivio pro quibuſcunque ſalibus uteris.

Confectio Salis Cathartici, quam Marcellus oſtendit ſic.

Salis duri & aſſati P. I. ℔ II. = oun. 1, dr. 7, ſcr. 1, gr. 17.
Salis Ammoniaci P. I. ℔ IV. = oun. 3, dr. 6, gr. 11.
Piperis albi ℔ III. = oun. 2, dr. 5, ſcr. 2, gr. 11 ½.
Zingiberis ℔ IV. = oun. 3, dr. 5, gr. 8 ½.
Inulæ ſeminis ℔ II. = oun. 1, dr. 6, ſcr. 1, gr. 14.

Ameos ℔ III.
Hyſſopi Cretici ℔ III.
Laſeris Radicis ℔ III.
Thymi ℔ III.
Folii ℔ III.
Apii ſeminis ℔ III.
Aneſi ℔ III.
Petroſelini Macedonici ℔ III.
} = oun. 2, dr. 5, ſcr. 2, gr. 11 ½.

Origani

Origani ℥ *quatuor* = oun. 3, dr. 5, gr. 8 ½.
Naſturtii ſeminis ℥ *tres* = oun. 2, dr. 5, ſcr. 2, gr. 11 ½.
Hæc omnia tunſa, cribrata, atque in pulverem tenuiſſimum redacta, & in unum commixta repones in vaſe vitreo, & inde quotiens aliquid ſumes ſeu bibes, quaſi pro aliis ſalibus uteris.

A Specimen of an Emulſion in Ulcerations of the Bladder.

Alterci ſeminis, malvæ ſeminis, Cucumeris edulis ſeminis purgati, ſingulorum denarios ſenos = dr. 6, gr. 25.
Amygdalorum dulcium purgatorum, nucleorum Pineorum purgatorum, ſingulorum * *ternos* = dr. 3, gr. 17 ½.
Opii * I. = dr. 1, gr. 2.
Croci * V. = dr. 5, gr. 12.
Paſſo contuſa hæc omnia conſparguntur, datur hoc medicamentum ad menſuram denarii unius = dr. 1, gr. 2.
Ex paſſi cyathis duobus, = four Spoonfuls.
Et aquæ tepidæ totidem.

Againſt Nephritick Pains.

Opii Drachmæ III. = dr. 3, gr. 7.
De mucleis Pineis excaldatis & purgatis Drach. III.
Croci Drach. III.
Amygdalæ dulcis excaldatæ & purgatæ Drach. III.
Avellanæ purgatæ & excaldatæ Drach. III.
Cucumeris ſeminis purgati Drach. XII. = oun. 1, dr. 4, ſcr. 1, gr. 9.
Hyoſcyami albi ſeminis Cyathos III.
Apii ſeminis Cyathos III.
Fæniculi ſeminis Cyathos III. } = oun. 2, dr. 5, gr. 13.
Lapatii ſeminis Drach. I. = dr. 1, gr. 2.

Hæc

Hæc omnia primum ſeparatim teres, & permiſcebis cum paſſo Cretico. Tum ex eo facies Trochiſcos habentes Drachmas ſingulos, & dabis bibendos ſingulos cum aquæ mulſæ calidæ Cyathis binis. = four Spoonfuls.

Againſt the Colick.

Panacis * IV. = dr. 4. gr. 9.
Piperis * IV. = dr. 4. gr. 9.
Dauci Cretici radicis vel ſeminis * VI. --- dr. 6, gr. 13.
Sulphuris vivi * S. = ſcr. 1, gr. 11.
Opii duas tertiaſve partes victoriati ponderis, = gr. 15 2 vel. 11.
Caſtorei * S. = ſcr. 1, gr. 11.
Myrrhæ * III. = dr. 3, gr. 7.
Hæc trita & cribrata vino conſparguntur, & ex iis fiunt paſtilli magnitudinis lupini. Dantur quum res poſtulat ex aceto & melle in unum mixto Cyathis tribus. = ſeven Spoonfuls.

The Simple Doſes of purging Medicines according to Ruffus Epheſius.

	Ou.	Dr.	Scr.	Gr.
Filiculæ radicis ex mulſo aut aqua ad Drachmas duas,	0	2	0	5
Ireos radicis in mulſo aa Drachmas ſeptem	0	7	0	17
Pulpæ Colocynthidos in mulſo Drachma una	0	1	0	2½
Siquis tamen mitius purgare volet, ſemen ejiciendum eſt.				
Calcifraga in mulſo ad Drachmas duas	0	2	0	5
Peplos & Peplis abſque doſi				
Aloes in mulſo Drachmas duas	0	2	0	5

	Ou.	Dr.	Scr.	Gr.
Hippophaes ſucci perſe obolos tres	0	0	1	11
Hippophæſtum minori copia				
Pycnocomum ejus radicem comedendam dato				
Vitis Drachmas duas	0	2	0	5
Epithymum tritum & cretum dandum eſt in vino	0	4	0	10
dulci ſemiuncia cum Siciliquo menſura	0	2	0	5
Thymi comæ Acetabuli menſura, a little above the eighth part of a Pint				
Amaraci ſicci melle excepti, Drachmæ quatuor	0	4	0	10
Similiter & Origanum danda ſunt ſicca cum mulſo Acetabuli menſura, the eighth part of a Pint.				
Papaveris utriuſque ſeminis in mulſo Acetabulum, the eighth of a Pint				
Cucumeris Radicis ſuccus ad pondus trium obolorum	0	0	1	11
Heliotropii minoris manualis faſciculus in decocto				
Seſamoidis ſeminis Acetabuli dimidium: the ſixteenth part of a Pint				
Tithymalli ſucci Drachma	0	1	0	2
Eſali folia perarida mulſo ſoluta menſura Acetabuli the eighth of a Pint				
Camelii folia nonnulli Abſinthium admiſcentes in Catapotia degerunt Pondus idoneum drachmæ duæ	0	2	0	5
Lathirius comeſta Grana decem	0	10	1	4
Agaricum ex mulſo aut poſca ad ſiciliquum	0	2	0	5
Euphorbium, deſunt cætera.				

The Doſes of ſimple purging Medicines, according to Paulus Ægineta.

	Ou.	Dr.	Scr.	Gr.
Aloes Drachma una cum aqua mulſa	0	1	0	2
Drachma una Radicum [veratri nigri] in aqua mulſa	0	1	0	2
Scammoniæ ---- pondere Obolorum quatuor	0	0	2	2½
Colocynthidis Medulla Drachmæ pondere	0	1	0	2½
Elaterium --- trium Obolorum pondere cum lacte	0	0	1	11
Tithymalli guttæ quatuor aut quinque cum polenta				
Lathyrides --- ſeptem aut octo & ad quindecim, ita ut robuſti & ampliori purgatione opus habentes, ipſas mandere jubeantur				
Peplii virgulta, octo obolorum pondere in aqua mulſa.	0	1	1	2½
Agaricum datur tritum duarum Drachmarum pondere cum aqua mulſa	0	1	0	2
Iris Illyrica octo Obolorum pondere in aqua mulſa	0	1	1	2½
Centaurii ſeſquidrachma in aquæ hemina	0	1	1	13½
Tragorigani flos cum ſemine duarum drachmarum pondere in aqua mulſa.	0	1	0	2
Chamelææ drachmæ quatuor in aqua mulſa	0	4	0	10
Ariſtolochiæ Clematidis ſeminis drachma una in aqua mulſa.	0	1	0	2
Polipodii Radix ſicca trita aquæ mulſæ inſperſa, (without the Doſe.)				
Epithymi drachmæ quinque triti cum ſero lactis	0	5	0	12
Pulegium Acetabuli menſura in aqua mulſa (the eighth of a Pint.)				
Tragorigani heracleotici eadem menſura.				

Aliſſpi

	Ou.	Dr.	Scr.	Gr.
Aliſpi ſeminis eadem menſura cum ſale & aceto.				
Styrais albi drachma una cum Reſina Terebinthina æqualis ponderis.	0	1	0	2
Oleæ radicis cortex drachmæ pondere cum vino aut aqua	0	1	0	2
Pyrethri oboli novem cum aqua	0	1	1	1 3/5
Lychnidis ſeminis drachmæ duæ	0	2	0	4 1/2
Cyclamini radicis Drachma una cum aqua mulſa.	0	1	0	2
Scordii drachmæ duæ cum melle	0	2	0	4 1/2
Squamæ Cypriæ Drachma dimidia cum pari reſina in Catapotiis.	0	0	1	11
Foliorum Lauri viridium ſeſquidrachma.	0	1	1	1 3/5
Cucumeris ſylveſtris Radicis Corticis oboli duo	0	0	2	1 1/2
Ricini Grana quadraginta, qui Crotones appellantur.	0	0	2	2 1/2
Bdellii Drachmæ duæ cum aqua mulſa.				
Squamæ Cypriæ drachma una cum aqua mulſa.	0	1	0	2
Verum aceti parum inſuper abſorbere oportet ut ne remoratur Grani Cnidii, a Granis viginti ad quadraginta.	0	0	2	1 1/2
	0	1	1	3
Euphorbii Drachma una cum melle cocto.	0	1	0	2
Lonchitidis ſeminis oboli octo cum aqua mulſa.	0	1	1	3
Cnici ſeminis Drachmæ quinque	0	5	0	12
Ammoniaci Thymiamatis Drachmæ duæ in aqua mulſa.	0	1	0	5

The Doſes of compound purging Medicines, from Paulus Æginæta.

CAtapotia ex Aloe; Colocynthidis medullæ partem unam, ſucci Abſynthii partem unam, Aloes partem unam, Scammoniæ partes duas, cum aqua in Catapotia efformata Ciceris magnitudine: dantur ex his Grana undecem.

Purgatorium aquam ducens ex Caryophyllo.

	Ou.	Dr.	Scr.	Gr.
Aloes, Epithymi, Caryophylli, Grani Cnidii, Petroſelini, Rhei Pontici, ſingulorum ſemiuncia,	0	3	2	3½
Euphorbii ſcrupulos quatuor,	0	1	1	3
Mellis quod ſatis eſt datur Cochlearii menſura.				

Purgatorium ex Malo Citrio, ſtomacho gratum.

Mali Citrii Corticis & Carnis libra una	10	7	1	6
In aquæ Sextario uno [one Pint] *ſemis ad tertias coquito. Et mellis ſextario dimidio adjecto, ad mellis ſpiſſitudinem coquito,*				
Et piperis longi uncia / *Scammoniæ in fermento toſtæ uncia. terito ac inſpergito.*	0	7	0	17

Buccellatus purgatorius.

Scammoniæ toſtæ uncia I.	0	7	0	17
Piperis & ſeminis Apii ſingulorum ſcrup. I.				
Fœniculi, Aniſi, ſingulorum uncia I.	0	7	0	17
Mellis libra I.				
De moderato toſtis dato unc. I. *in condito.*				

Vi-

Vinum purgatorium in Hydropicis.

Scyllæ quadrantem
Apii ſeminis ſextuncem
Piperis Drachma I.
Capparis Radicis Drachmæ IV.
Grani Cnidii decorticati Drachma I.
Folii Malabathri globulos II.
Vini heminas XII.
Mellis Sextar. III.
Scyllam contuſam in vino macerato, reliqua trita admiſceto.

Purgatoria ex Hermodactylo Podagrica.

Hermodactyli quadrantem
Aniſi, Cumini Æthiopici, Ameos, Thymi Corymborum, Piperis albi, Zingiberis, ſingulorum ſcrup. III.
Epithymi ſemunciam
Doſis ſcrup. IV. = *aliqui ſex dant.*
Dantur mane cum condito, aut aqua mulſa, aut mero ſervefacto.

Some Inſtances of the Practice of Aretæus.

AS to Blood-letting he was very judicious, both as to the caſes and quantities.

[a]In Frenzies he was againſt letting much Blood at a time, becauſe ſuch Patients were apt to fall into a fainting Fit; unleſs it was the caſe of a young, ſtrong, and replete Body: and even in ſuch a caſe leſs was to be let, becauſe they were frantick. But if the original of the Diſeaſe was in the Heart and not the Brain, then Blood was to be let the more liberally, and at one time. [b]In Apoplexies he lays great ſtreſs upon letting Blood, but owns that it is hard to proportion the due Quantity. [c]In the Cure of a *Tetanus* he is for letting Blood once, not quite to the fainting of the Patient. The vein in the Arm is that which he commonly opens, *in curvatura Cubiti*: and he gives a particular caution in this caſe to make a ſlack compreſſion, for fear of exciting a Convulſion. [d]In a *Quinſy* he orders Blood-letting in ſome caſes till the Patient faints, at leaſt till he is very near it. [e]It appears that he thought copious Blood-letting was more neceſſary in a *Quinſy*, than in an Inflammation of the Lungs, for in that caſe he orders it not quite *ad animæ deliquium*. [f]In the Head-ach he orders the opening of the vein of the Forehead, and Blood to be let to the quantity of a *Hemina*, or a little more, that is ſomewhat more than

[a] Cap. 1. lib. 1. de Morbor. acutor. curatione. Venæ quoque inciſor ne multum ſanguinis detrahat, licet a principio ſecet. Phreniticis namque malum eſt in Syncopam facile mutabile. Sin autem ægrotus valde repletus ſit, & juvenis plurimo cibo, & largiſſimo vini potu ſaginatus, hæ ad Phrenitidem rationes non pertinent: verum iſtis & citra delirium, multum ſanguinis hauriendum eſt: longe autem minus auferendum ſi iidem Phrenitici ſunt. ... Quod ſi vires patiantur ut quantum ſanguinis ſatis eſt evacuetur, ſemel auferendum eſt. [b] Ibid. cap. 4. Æquale ſane adjutorium utpote magno affectui magnum remedium miſſio ſanguinis eſt. [c] Ibid. cap. 5. Semel etiam cruor citra defectum animæ totiuſque extremorum mediocriter effundatur. [d] Ibid. cap. 7. Haud ignobile quoque ad curationem præſtat ſi ad animæ uſque defectum ægrum perduxeris, uſque eo tamen dum ne anima deficiat. [e] Lib. 2. cap. 1. [f] De Morb. diuturnor. curatione. Poſtea item vena frontis recta ſcindenda eſt, hæc enim eſt opportuniſſima ſanguinis detractio, modus vero, ejus Hemina aut paulo plus.

than half a Pint; this is the firſt time that I have read of any Meaſure of the quantity of Blood. [g] His Purges are *Cnicus* and black *Hellebor*, and *Hiera* to the quantity of two *Drachms* to be given ſometimes at Night. [h] *Elaterium*, mention'd only with this reſtriction, as much as is neceſſary to purge a man, and *Cneorum* or *Thymelæa* without mentioning any Doſe. Theſe laſt in a *Quinſy*, in which Diſeaſe he commends the *Elaterium* as moſt proper. He commends the *Radix Rhei* or *Rhubarb* as a better aſtringent than the juice of *Hypociſtis* or *Accatia*, he orders it in the weight of three *Oboli*, or thirty one Grains. He commends *Hellebor* in Melancholy, and tells you that he will deſcribe the ſeveral ſpecies of it, and manner of uſing of it, which is loſt, with many other paſſages of his Works: you may ſee his commendation of white *Hellebor* in the quotation at the bottom of the page, which I think is very remarkable.

For Vomits he uſes *Cardamomi pars, Æris combuſti* ∋, *ex mulſo in Epilepſies*, this he ſaith will either vomit or purge. Afterwards he adds theſe words, *verum potentiora etiam his medicamina ad vomitum deligenda ſunt, ut Narciſſi, Bulbi, Sinapis, & Hyſſopi pares partes, Æris & Piperis dimidio minus quam priora, cum melle miſcens exhibe.*

For *Cliſters* he uſes *Nitre, Euphorbium* the weight of three *Oboli* or thirty one Grains, the inward part of a ſort of Gourd, of the decoction of *Centaury* in Oyl or Water, Honey with *Rue*, Turpentine and *Hyſſop*; *Exempli gratia, Lotione per Clyſterem uſitata opus eſt:*

[g] De curat. acutor. morb. cap. 2. [h] Ibid. cap. 7. At ſi deglutiendi via expeditiſſima ſit, Elaterium & cum mulſa & cum ſero lactis, quantum ad purgandum hominem ſatis ſit, præbeatur. Aliis enim purgatoriis Elaterium in his ægrotis præſtantius eſt. Conferunt etiam Cneorum ſeu Tthymelæ & Sinapi.——Quin & album Veratrum non vomitum tantum molitur ſed & etiam omnium ſimul purgantium medicamentorum efficaciſſimum eſt, non multitudine & varietate excrementorum: (id enim & affectus ille qui cholera dicitur, præſtare ſolet) non diſtentionibus & violentia in vomendo (ad hoc enim & nauſea & mare validiora ſunt) ſed potentia & qualitate non vitioſa; quippe quæ laborantibus ſanitatem reddit per exiguam purgationem, & modicam intentionem. vetuſtorum præterea morborum omnium firmis Radicibus inhærentium, ſi cuncta alia medicamina viribus inferiora ſint, id unicum remedium eſt; ſiquidem igni facultate perſimile eſt album Veratrum: & quod ignis exurens facit, eo plus veratrum interius diſcurrens operatur: videlicet facilem ſpirationem ex difficili, ex pallido colore floridum, & ex macie corpulentiam.

eſt: in qua Nitri multum inſpergatur, aut Reſinæ a Terebintho arbore pondo Drachmæ duæ [dr. 2, gr. 5.] *eliquentur.*

He fomented the Head with Opiats to procure Sleep, particularly he commends the *Poppy* boil'd in Oyl and applied to the back part of the Head; and a Solution of *Opium* in Water to foment the Forehead. *Cap.* 1. *de morbis acutis. Magis autem ſoporiferum eſt Papaver in oleo elixum, capitis ſincipiti ſuperdatum,* —— *At ſi valentioribus auxiliis egebunt, ipſa etiam Papaveris lachryma ex aqua frons inungenda.* There are other mechanical helps he uſes to procure Sleep, in the ſame Chapter, not amiſs, particularly the ſcratching of the Temples and the Ears, for he ſaith even that mollifies the fury of wild Beaſts. Theſe Remedies are preſcribed in Madneſs.

For bliſtering, particularly in the falling Sickneſs, he uſes Frictions with *Cantharides*, but before orders Milk for fear they ſhould inflame the Bladder. *De curatione diuturnor. morb. cap.* 4.

For the ſame purpoſe he uſes *Lemneſtides* or *Adarce.*

Euphorbium cum unguine gleucino, and the ſtinging the Legs with Nettles, theſe in a Lethargy. *De Curat. morb. acut. cap.* 2.

He uſes Frictions with Squills for the ſame purpoſe.

He orders *Caſtor* in the Doſe of half a *Drachm*, and the ſame in *Cliſters, Caſtoreum dimidiæ Drachmæ pondere ex mulſæ Cyathis tribus ad plures dies bibendum eſt, ſi bibi vero non poſſit, ad demoliendam calamitatem, cum olei cyathis tribus, in quo ruta incocta ſit, duplum in imum inteſtinum infundatur, idque per plures dies faciendum.* He preſcribes it afterwards in the doſe of three *Oboli*, which is the ſame quantity; and yet he preſcribes *Aſſa fœtida* in the bigneſs of an *Ervum* or Vetch. *Quod ſi Cyreniaci Laſerpitii lachrymæ copia ibi fiat, hanc opus eſt melle cocto involutam ad Ervi magnitudinem devorandam dare.* By this paſſage it would ſeem that this Drug had not been ſo common. The *Ervum* I believe is a larger quantity than a Vetch, or even a common Pea.

He commends Milk as the Specifick in Conſumptions. (*De curatione morb. acutor. lib.* 1.) but he reckons Women's Milk new the beſt, and Goat's the worſt. *Morb. acut. lib.* 2. *cap.* 6.

He

He allows Patients that are ſubject to fainting not above half a Pint. *Ibid. cap.* 3.

Thus I have ſlightly touched this Subject ſo far as it falls in with my preſent Deſign, and I take the Liberty to recommend the further Proſecution of it to ſome Student of the Profeſſion, as a Work both uſeful to himſelf and the Publick.

It had been ſufficient in moſt Places of this ſhort Eſſay, to have ſet down the proportion of the Ingredients, noting only for once the ſmall difference of the *Denarius* and *Drachm*; but it having been done in the Manuſcript in every particular, I thought it was needleſs to expunge it.

FINIS.

ERRATA.

Page 143 *dele* Varro, *read* Ælian who relates, *&c.*
190 *for* artificium, *read* artificum.
224 *for* Phocæ, *read* Phocææ.
251 *for* Venetæ, *read* Veneti.
252 *after* Phœnicians, *add* who.
ibid. *Note* m. *inſert* before the Birth of Chriſt.

English measures of length

	Inch										
	3	Palm									
	9	3	Span								
	12	4	$1\frac{1}{3}$	Foot							
	18	6	2	$1\frac{1}{2}$	Cubit						
1	36	12	4	3	2	Yard					
	60	20	$6\frac{2}{3}$	5	$3\frac{1}{3}$	$1\frac{2}{3}$	Pace				
	72	24	8	6	4	2	$1\frac{1}{5}$	Faddom			
	198	66	22	$16\frac{1}{2}$	11	$5\frac{1}{2}$	$3\frac{3}{10}$	$2\frac{3}{4}$	Pole		
	7920	2640	880	660	440	220	132	110	40	Furlong	
	63360	21120	7040	5280	3520	1760	1056	880	320	8	Mile

GRECIAN measures of length reduced to

												Engl. Paces. Feet. Inch. Dec.
	δάκτυλος											0 – 0 – 0,7554 $\frac{11}{16}$
	4	δῶρον δίχμη										0 – 0 – 3,0218 $\frac{3}{4}$
	10	$2\frac{1}{2}$	λιχὰς									0 – 0 – 7,5546 $\frac{7}{8}$
	11	$2\frac{3}{4}$	$1\frac{1}{10}$	ὁρθόδωρον								0 – 0 – 8,3101 $\frac{9}{16}$
	12	3	$1\frac{1}{5}$	$1\frac{1}{11}$	σπιθαμὴ							0 – 0 – 9,0656 $\frac{1}{4}$
2	16	4	$1\frac{6}{10}$	$1\frac{5}{11}$	$1\frac{1}{3}$	ποῦς						0 – 1 – 0,0875
	18	$4\frac{1}{2}$	$1\frac{4}{5}$	$1\frac{7}{11}$	$1\frac{1}{2}$	$1\frac{1}{8}$	πυγμὴ					0 – 1 – 1,5984 $\frac{5}{8}$
	20	5	2	$1\frac{8}{11}$	$1\frac{2}{3}$	$1\frac{1}{4}$	$1\frac{1}{9}$	πυγὼν				0 – 1 – 3,109 $\frac{3}{8}$
	24	6	$2\frac{2}{5}$	$2\frac{2}{11}$	2	$1\frac{1}{2}$	$1\frac{1}{3}$	$1\frac{1}{5}$	πῆχυς			0 – 1 – 6,13125
	96	24	$9\frac{3}{5}$	$8\frac{8}{11}$	8	6	$5\frac{1}{3}$	$4\frac{4}{5}$	4	ὀργυιὰ		0 – 6 – 0,525
	9600	2400	960	$872\frac{8}{11}$	800	600	$533\frac{1}{3}$	480	400	100	κάδιος αὖλος	100 – 4 – 4,5
	76800	19200	7680	$6981\frac{9}{11}$	6400	4800	$4266\frac{2}{3}$	3840	3200	800	8	μίλιον 805 – 5 – 0

ROMAN *measures of length.*

										Engl. Paces.	Feet.	Inch. Dec.
Digitus transversus										0	0	0,7254
1 1/3	uncia									0	0	0,967
4	3	palmus minor								0	0	2,901
16	12	4	pes							0	0	11,604
20	15	5	1 1/4	palmipes						0	1	2,505
24	18	6	1 1/2	1 1/3	cubitus					0	1	5,406
40	30	10	2 1/2	2	1 2/3	gradus				0	2	5,01
80	60	20	5	4	3 1/3	2	passus			0	4	10,02
10000	7500	2500	625	500	416 2/3	250	125	stadium		120	4	4, 5
80000	60000	20000	5000	4000	3333 1/3	2000	1000	8	milliare	967	0	0

SCRIPTURE measures of length.

								Engl. Feet.	Inch. Dec.
Digit								0	0,912
4	palm							0	3,648
12	3	span						0	10,944
24	6	2	cubit					1	9,888
96	24	8	4	fathom				7	3,552
144	36	12	6	1 1/2	Ezekiels Reed			10	11,328
192	48	16	8	2	1 1/3	Arabian pole		14	7,104
1920	480	160	80	20	13 1/3	10	Schœnus measuring line	145	11,04

The longer SCRIPTURE measures.

Note *the* Ealt *us'd another* Span *equal to* 3/5 *of a* Cubit.

						Engl. Miles.	Paces.	Feet. Dec.
Cubit						0	0	1,824
400	stadium					0	145	4,6
2000	5	Sab days journey				0	729	3,0
4000	10	2	Ealtern mile			1	403	1,0
12000	30	6	3	parasang		4	153	3,0
96000	240	48	24	8	a days journey	33	172	4,0

English square measures.

Inches						
144	Feet					
1296	9	Yards				
3600	25	$2\frac{7}{9}$	Paces			
39204	$272\frac{1}{4}$	$30\frac{1}{4}$	10,89	Poles		
1568160	10890	1210	435,6	40	Rood	
6272640	43560	4840	1743,6	160	4	Acre

English measures of capacity, Wine measure.

Solid Inches								
$28\frac{7}{8}$	Pint							
231	8	Gallon						
4158	144	18	Rundlet					
$7276\frac{1}{2}$	252	$31\frac{1}{3}$	$1\frac{3}{4}$	Barrel				
9702	336	42	$2\frac{1}{3}$	$1\frac{1}{3}$	Tierce			
14553	504	63	$3\frac{1}{2}$	2	$1\frac{1}{2}$	Hogshead		
19279	672	84	$4\frac{2}{3}$	$2\frac{2}{3}$	2	$1\frac{1}{3}$	Punchion	
29106	1008	126	7	4	3	2	$1\frac{1}{2}$	Butt
58212	2016	252	14	8	6	4	3	2 Tun

English Corn measures.

are raiſ'd from a Winchester Gallon, *which contains* $272\frac{1}{4}$ *ſolid Inches. & as farr as ſerves our purpoſe are*

Solid Inches					
$34\frac{1}{32}$	Pints				
$272\frac{1}{4}$	8	Gallon			
$544\frac{1}{2}$	16	2	Peck		
2178	64	8	4	Buſhel	
17424	512	64	32	8	Quarter

GRECIAN SQUARE MEASURE.

Πλέθρον *by some said to contain* 1444. *others* 10000. Sq. Feet.

Ἄρουρα *the half of the* Πλέθρον.

The Ægyptian Ἄροῦρα was a square of 100 Cub.ts

ROMAN SQUARE MEASURE.

The ROMANS *divided their* As, Libra *or any* Integer *after the following manner, so the* Jugerum *was reckon'd a* Integer.

	Unciæ.		*JUGERUM contain'd* Square Feet.	Scruples.	Engl. Roods. Sq. Poles. Sq. Feet.
1	As.....	12	As..... 28800	288	..... 2 ---- 18 --- 250,05
11/12	Deunx....	11	Deunx.... 26400	264	..... 2 ---- 10 --- 183,85
10/12	Dextans..	10	Dextans... 24000	240	..... 2 ---- 2 --- 117,64
9/12	Dodrans..	9	Dodrans.. 21600	216	..... 1 ---- 34 --- 51,42
8/12	Bes.....	8	Bes..... 19200	192	..... 1 ---- 25 --- 257,46
7/12	Septunx..	7	Septunx... 16800	168	..... 1 ---- 17 --- 191,25
6/12	Semis.....	6	Semis..... 14400	144	..... 1 ---- 09 --- 125,03
5/12	Quincunx.	5	Quincunx.. 12000	120	..... 1 ---- 01 --- 58,82
4/12	Triens.....	4	Triens..... 9600	96	..... 0 ---- 32 --- 264,85
3/12	Quadrans.	3	Quadrans.. 7200	72	..... 0 ---- 24 --- 198,64
2/12	Sextans...	2	Sextans... 4800	48	..... 0 ---- 16 --- 132,43
1/12	Uncia....	1	Uncia.... 2400	24	..... 0 ---- 08 --- 66,21

NOTE Actus Major *was* 14400 *Square feet equal to a* Semis-

Clima 3600 *Square feet equal to a* Sesquncia.

Actus minimus *equal to a* Sextans.

ATTICK *measures of capacity for things Liquid.*

ENGLISH WINE MEASURE.

										Gall.	Pints.	Sol. Inch. Dec.
									κοχλιάριον	0	$\frac{1}{120}$	0,0356$\frac{5}{12}$
								2	χήμη	0	$\frac{1}{60}$	0,0712$\frac{5}{6}$
							2$\frac{1}{2}$	1$\frac{1}{4}$	μύσρον	0	$\frac{1}{48}$	0,0891$\frac{11}{48}$
						5	2$\frac{1}{2}$	2	κόγχη	0	$\frac{1}{24}$	0,1781$\frac{11}{24}$
10					10	5	4	2	κύαθος	0	$\frac{1}{12}$	0,356$\frac{11}{12}$
				15	7$\frac{1}{2}$	6	3	1$\frac{1}{2}$	ὀξύβαφον	0	$\frac{1}{8}$	0,5353$\frac{3}{8}$
			60	30	24	12	6	4	κοτύλη	0	$\frac{1}{2}$	2,1411$\frac{1}{2}$
		120	60	48	24	12	8	2	ξέστης	0	1	4,283
	720	360	288	144	72	48	12	6	χοῦς	0	6	25,698
8640	4320	3456	1728	864	576	144	72	12	μετρητὴς	10	2	19,626

ATTICK *measures of capacity for things Dry.*

ENGLISH CORN MEASURE.

							Pecks.	Gall.	Pints.	Sol. Inch.
						κοχλιάριον	0	0	0	0,2767$\frac{7}{20}$
					10	κύαθος	0	0	0	2,7683$\frac{1}{2}$
				15	1$\frac{1}{2}$	ὀξύβαφον	0	0	0	4,1443$\frac{3}{4}$
			60	6	4	κοτύλη	0	0	0	16,579
11			120	12	8	2	ξέστης	0	0	0	33,158
		180	18	12	3	1$\frac{1}{2}$	χοῖνιξ	0	0	1	1,5705$\frac{3}{4}$
	8640	864	576	144	72	48	μέδιμνος	4	0	6	3,501

N.B. *Besides this* Medimnus *which is the* Medicus, *there was a* Medimnus Georgicus *equal to* 6 Roman Modij

N.2. *There are some other Measures (mention'd by Authors) of uncertain value easily reducible to those of the Tables.*

ROMAN measures *of capacity for things* liquid.

										English Wine Measure Gall.	Pints.	Sol.Inc.Dec.
	Ligula									0	$0\frac{1}{48}$	$0,117\frac{5}{12}$
	4	Cyathus								0	$0\frac{1}{12}$	$0,469\frac{2}{3}$
	6	$1\frac{1}{2}$	Acetabulum							0	$0\frac{1}{8}$	$0,704\frac{1}{2}$
	12	3	2	Quartarius						0	$0\frac{1}{4}$	1,409
12	24	6	4	2	Hemina					0	$0\frac{1}{2}$	2,818
	48	12	8	4	2	Sextarius				0	1	5,636
	288	72	48	24	12	6	Congius			0	7	4,942
	1152	288	192	96	48	24	4	Urna		3	$4\frac{1}{2}$	5,33
	2304	576	384	192	96	48	8	2	Amphora	7	1	10,66
	46080	11520	7680	3840	1920	960	160	40	20 Culeus	143	3	11,095

Note 1. Quadrantal *is y same wth y* Amphora, Cadus, Congiarius & Dolium *denote no certain measure.*
Note 2. *The* Romans *divided the* Sextarius *as the* Libra *into* 12 *equal parts called* Cyathi *and therefore they denominated their* Calices, Sextantes, Quadrantes, Trientes, *according to the number of* Cyathi *which they contain'd.*

ROMAN measures *of capacity for things* dry.

								English Corn Measure Pecks.	Gall.	Pints.	Sol.Inc.Dec.
	Ligula							0	0	$0\frac{1}{48}$	0,01
	4	Cyathus						0	0	$0\frac{1}{12}$	0,04
	6	$1\frac{1}{2}$	Acetabulum					0	0	$0\frac{1}{8}$	0,06
13	24	6	4	Hemina				0	0	$0\frac{1}{2}$	0,24
	48	12	8	2	Sextarius			0	0	1	0,48
	384	96	64	16	8	Semimod		0	1	0	3,84
	768	192	128	32	16	2	Modius	1	0	0	7,68

JEWISH measures *of capacity for things* liquid.

								Gall.	Pints.	Sol.Inc.
	Caph							0	$0\frac{5}{8}$	0,177
	$1\frac{1}{3}$	Log						0	$0\frac{3}{6}$	0,211
	$5\frac{1}{3}$	4	Cab					0	$3\frac{1}{3}$	0,844
14	16	12	3	Hin				1	2	2,533
	32	24	6	2	Seah			2	4	5,067
	96	72	18	6	3	Bath Epha		7	4	15,2
	960	720	180	60	30	10	Coron Chomer	75	5	7,625

6

JEWISH measures of Capacity for things dry. English Corn Measure.

							Pecks.	Gall.	Pints.	Sol. Inc.	Dec
						Gachal	0	0	$0\frac{17}{20}$	0	,031
20						Cab	0	0	$2\frac{5}{6}$	0	,073
36	$1\frac{4}{5}$					Gomor	0	2	$5\frac{1}{10}$	1	,211
120	6	$3\frac{1}{3}$				Seah	1	0	1	4	,036
360	18	10	3			Epha	3	0	3	12	,107
1800	90	50	15	5		Letech	16	0	0	26	,500
3600	180	100	30	10	2	Chomer Coron	32	0	1	18	,969

15

ENGLISH *Troy weight.*

Grains.							The most Antient GRECIAN Weights reduc'd to Troy weight.			
							lb	Ounces.	Pen. W.t	Grains
24	Penny-weight.					Δραχμη	00	00	06	$2\frac{27}{49}$
480	20	Ounce.		100	Μνα		01	01	00	$4\frac{44}{49}$
5760	240	12	Pound.	6000	60	Ταλαντον	65	00	12	$5\frac{43}{49}$

16

Less Ancient GRECIAN and ROMAN weights reduced to English Troy weight.

									lb	Ounces.	Pen. W.t	Grains.
								Lentes	0	0	00	$0\frac{35}{112}$
4	Siliquæ								0	0	00	$3\frac{1}{28}$
12	3	Obolus							0	0	00	$9\frac{3}{28}$
24	6	2	Scripulum						0	0	00	$18\frac{9}{14}$
72	18	6	3	Drachma					0	0	02	$6\frac{9}{14}$
96	24	8	4	$1\frac{1}{3}$	Sextula				0	0	03	$0\frac{6}{7}$
144	36	12	6	2	$1\frac{1}{2}$	Sicilicus			0	0	04	$13\frac{2}{7}$
192	48	16	8	$2\frac{2}{3}$	2	$1\frac{1}{3}$	Duella		0	0	06	$1\frac{5}{7}$
576	144	48	24	8	6	4	3	Uncia	0	0	18	$5\frac{1}{7}$
6912	1728	576	288	96	72	48	36	12	Libra	0	10	18	$13\frac{5}{7}$

17

The Roman Ounce *is the English* Avoirdupois Ounce *which they divided into* 7 Denarij, *as well as* 8 Drachmæ, *and since they reckond their* Denarius *equal to the* Attick Drachm *this will make the* Attick *weights* $\frac{1}{8}$ *heavier then the correspondent* Roman weights.

Note *The* Grecians *divided their* Obolus *into* Chalci *and* λεπτα *some as* Diodorus *and* Suidas *divided the* Obolus *into* 6 Chalci *and every* Chalcus *into* 7 λεπτα *others divided the* Obolus *into* 8 Chalci *and every* Chalcus *into* 8 λεπτα *or minuta.*

The greater weights reduc'd to Engl. Troy weig.

				℔.	Ounces.	Penw.t	Grains.
Libra				0	10	18	$13\frac{5}{7}$
$1\frac{1}{24}$			Mina Attica communis	0	11	07	$16\frac{2}{7}$
$1\frac{1}{3}$	$1\frac{7}{25}$		Mina Attica Medica	1	02	11	$10\frac{2}{7}$
$62\frac{1}{2}$	60	$46\frac{17}{8}$	Talentum Atticum commune	56	11	00	$17\frac{1}{7}$

18

Note *There was another* Attick Talent *by some said to consist of* 80 *by others a* 100 Minæ. Note *every* Mina *contains a* 100 Drachmæ *and every* Talent 60 Minæ, *but the* Talents *differ in weight according to the different* Standard *of the* Drachmæ *and* Minæ *of which they are compos'd*. The *value of some different* Minæ *and* Talents *in* Attick Drachmæ, Minæ *and* English Troy weight, *is exhibited in the following* Table.

MINA.

			℔	Ounc.	Pen.wt	Grs.
Ægyptiaca	est Drachm. Attic.	$133\frac{1}{3}$	1	05	06	$22\frac{26}{49}$
Antiochica		$133\frac{1}{3}$	1	05	06	$22\frac{26}{49}$
Cleopatræ Ptolemaica		144	1	06	14	$16\frac{32}{49}$
Alexandrina Dioscoridis		160	1	08	16	$0\frac{41}{49}$

19 TALENTUM.

Ægyptiacum	est Minarum Atticar.	80	86	08	16	08
Antiochicum		80	86	08	16	08
Ptolemaicum. Cleop.		$86\frac{2}{3}$	93	11	11	00
Alexandriæ		96	104	00	19	14
Insulanum		120	130	01	04	12
Antiochiæ		360	390	03	13	11

8

JEWISH WEIGHTS *reduc'd to English Troy Weights.*

			℔	Ounc	Pw.t	Gr.
	Shekel		00	00	09	02 $\frac{4}{7}$
20	60	Maneh	02	03	06	10 $\frac{2}{7}$
	3000	50 Talent	113	10	01	10 $\frac{2}{7}$

Note *in reckoning* money 50 Shekels *made a* Maneh, *but in weight* 160 Shekels.

The value and proportion of the Grecian Coins

											l	sh	d	q
	λεπτὸν										00	00	00	0 $\frac{31}{336}$
	7	χαλκὸς									00	00	00	0 $\frac{31}{48}$
	14	2	δίχαλκος								00	00	00	1 $\frac{7}{24}$
	28	4	2	ἡμιωβολίον							00	00	00	2 $\frac{7}{12}$
	56	8	4	2	ὀβολὸς						00	00	01	1 $\frac{1}{6}$
21	112	16	8	4	2	διώβολον					00	00	02	2 $\frac{1}{3}$
	224	32	16	8	4	2	τετρώβολον				00	00	05	0 $\frac{2}{3}$
	336	48	24	12	6	3	1 $\frac{1}{2}$	δραχμὴ			00	00	07	3
	662	96	48	24	12	6	3	2	δίδραχμον		00	01	03	2
	1324	112	96	48	24	12	6	4	2	τετράδραχμον ςατὴρ	00	02	07	0
	1660	384	120	60	30	15	7 $\frac{1}{2}$	5	2 $\frac{1}{2}$	1 $\frac{1}{4}$ τεντάδραχμον	00	03	02	3

Note *of these the* Drachma, Didrachm &c. *were of* Silver, *the rest for the most part of* Brass; *the other parts as* Tridrachm, Triobolus &c *were sometime* Coin'd

N 2 *I have suppos'd with the generality of Authors that the* Drachma *and* Denarius *were equal, tho' ther's reason to believe the* Drachma *was somewhat the weightier.*

THE GRECIAN GOLD COIN *was ye* Stater Aureus *weighing* 2 *Attick Drachms or half of ye* Stater Argenteus *& exchanging usually for* 25 Attick Drachms *of* Silver *in our money* ..... 00 – 16 – 1 $\frac{3}{4}$

According to our proportion of Gold *to* Silver ..... 01 – 00 – 9

There were likewise ye Stater Cyzicenus *exchanging for* 28 Attick Drachms *or* .... 00 – 18 – 1

22 Stater Phillippicus & Stater Alexandrinus *of the same value*

Stater Daricus *according to* Josephus *worth* 50 Attick Drachms *or* ..... 01 – 12 – 3 $\frac{1}{2}$

Stater Cræsius *of the same value.*

9

The GRECIAN manner of reckoning sums of money, was by DRACHMÆ.

	l.	sh.	d.
1	0	00	07 3/4
10	0	06	05 1/2
100 equal to a Mina	3	04	07

MINÆ

1	3	04	07
10	32	05	10
60 equal to a Talentum	193	15	00

TALENTA

1	193	15	00
10	1937	10	00
100	19375	00	00

I have given the value of 5 different Talents and Minæ, consider'd as Weights: but when they denote Sums of money, they vary after the following manner.

MINA Syra		25
Ptolemaica		33 1/3
Antiochica		100
Eubœa	est Drachm.	100
Babylonica	Atticar.	116
Attica major		133 1/3
Tyria		133 1/3
Æginæa		166 2/3
Rhodia		166 2/3
TALENTUM Syrum		15
Ptolemaicum		20
Antiochicum		60
Eubœum	Minarum	60
Babylonicum	Atticarum.	70
Atticum majus		80
Tyrium		80
Æginæum		100
Rhodium		100
Egyptium		80

The value and proportion of the Roman Coins.

						l	sh	d	q
Teruncius						00	00	00	0 775/1000
2	Sembella					00	00	00	1 55/100
4	2	Libella. As				00	00	00	3 1/10
10	5	2 1/2	Sestertius			00	00	01	3 3/4
20	10	5	2	Quinarius Victoriatus		00	00	03	3 1/2
40	20	10	4	2	Denarius	00	00	07	3

Note of these the Denarius, Victoriatus, Sestertius and sometimes the As were of Silver, the rest of Brass.

There were sometimes also Coin'd of Brass the Trients, Sextans, Uncia, Sextula and Dupondius.

The ROMAN GOLD COIN was the *AUREUS, which weigh'd Generally double the* Denarius: *The value of which according to the first proportion of* Coinage *mentioned by* Pliny Lib. XXXIII. Cap. III.

	£ - s - d
was worth	1 - 04 - $3\frac{3}{4}$
According to the proportion that obtains now amongst us, is worth.	1 - 00 - 9
According to the Decuple proportion mentioned by LIVY *and* JULIUS POLLUX *worth.*	0 - 12 - 11
According to the proportion mentioned by TACITUS, *and which afterwards obtain'd whereby the* AUREUS *exchang'd for* 25. Denarij, *its value.*	0 - 16 - $1\frac{3}{4}$

Some Alterations *of the Value of the* ROMAN COIN *mention'd by* Pliny.

In the Reign of Servius		1 Pound.
A. Urb. 490	The AS *weighed*	2 Ounces.
A. Urb. 537	*of* Brass	1 Ounce.
A. Urb. 586		$\frac{1}{2}$ Ounce.
A. Urb. 485	DENARIUS	10 Asses.
A. Urb. 537	*exchang'd for*	16 Asses.
A. Urb. 547 Scruple *of* GOLD *worth*		20 Sestertij.
Coin'd afterwards of the Pound *of* Gold		20 Denarij. } Aurei.
In NERO'S *Time of the* Pound *of* Gold		45 Denarij. }

The ROMAN manner of reckoning Sums of money reduc'd to the ENGLISH STANDARD.

Sestertij nummi.

	l	sh	d	q
Sestertius	0	00	01	$3\frac{3}{4}$
Decem	0	01	07	$1\frac{1}{2}$
Centum	0	16	01	3
Mille *equal to a* Sestertium	8	01	03	2

Sestertia.

Sestertium	8	01	05	$\frac{1}{2}$
Decem	80	14	07	
Centum, *this Sum the Romans expreſt thus:* debet mihi centum, debet mihi centum Sestertia, *vel* debet centum millia Sestertium.	807	03	10	
Mille	8072	18	04	

Decies Sestertium &c.

The adverb Centies *being underſtood.*

Decies Sestertium *vel* Decies centena millia nummum.	8072	18	04	
Centies *vel* Centies H.S.	80729	03	04	
Millies HS	807291	13	04	
Millies Centies HS	888020	16	08	

The ROMAN manner of reckoning INTEREST OF MONEY.

Asses usuræ *vel* Centesimæ usuræ	1		12	
Semisses usuræ	1		6	
Trientes usuræ	2		4	
Quadrantes usuræ	3		3	
Sextantes usuræ	4		2	
27 Unciæ usuræ	6		1	
Quincunces usuræ	10	per Cent a Month	5	per Cent a Year.
Septunces usuræ	12		7	
Besses usuræ	14		8	
Dodrantes usuræ	16		9	
Dextantes usuræ	18		10	
Deunces usuræ	20		11	
	22		12	

JEWISH money *reduced to the English Standard.*

Gerah

					l.	sh.	d.
10	Bekah				00	00	1 59/100
20	2	Shekel			00	01	1 11/16
1200	120	50	Maneh Mina Hæbraica		00	02	3 3/8
60000	6000	3000	60	Talent	05	14	00 3/4

28

Solidus Aureus *or* Sextula *worth*	342	03	09
Siclus Aureus *worth*	00	12	0 1/2
A Talent *of* Gold *worth*	1	16	6
	5475	00	0

29 Note in all the Tables of money I reckon Silver at 5 Shillings and Gold 4 Pound the Ounce.

12

The EXPLANATION *of some of ye more usual* Characters *of* Weights *and* Measures *found in* Greek & Roman Authors.

q...Amphora	Κρμ...μετρήτης	p,-h...Libra.	=...Sextans.	μ...μνᾶ
qS.Urna.	χ°...χοῦς	pp.Dupondium.	≡...Quadrans.	Λ.Χ...λίτρα
ε...Congius.	ξε...ξέσης	⊥...Uncia.	≡≡...Triens.	ξ...ουγγία
Ↄ...Sextarius.	Χ...κοτύλη	εS...Semiuncia.	≡≡...Quincunx.	Δ...δραχμὴ
ↃS.Hemina.	ξ...ὀξύβαφον	ϙ...Sicilicus.	S.S''...Semilibra.	γρ...γράμμα
Q...Quartarius.	Κ...κύαθος	U...Sextula.	V...Septunx.	ϙ...ὀβολός
Κυ cυ.Cyathus.	μ...μύςρον	∠...Drachma.	-S-Bes.	Κε...κεράτιον
M.Modius.	χη...χήμη	⊤,SS.Scriptulus.	S≡...Dodrans.	χα...χαλκος
MS.Semimodius.	με...μέδυμνος	⊖...Obolus.	S≡≡Dextans.	
	χ°...χοῖνιξ	N...Siliqua.	S≡≡Deunx.	
		QUU.Chalcus.	Ψ...Semisextula.	
		O...Granum.	IↃ...Binæ Sextulæ.	
		X✳Denarius.	⊥...Drachmæ sex.	

Those *who do not understand* Decimal Fractions, *may observe that the* Denominator *of every such* Decimal, *is an Unite with as many* Cyphers *as there are places of numbers in the fraction: thus in the second Table under* Inch.dec. 3,0218, *signifys* 3 Inches *and* $\frac{0218}{10000}$ *of an* Inch: 3,12 *signifys* 3 Inches *and* $\frac{12}{100}$ *of an* Inch: 10,4 *is* 10 Inches *and* $\frac{4}{10}$ &c. All *other things in the* Tables *with their severall uses are plain.*

Decimal Tables

Roman Measures of Length

	Inches
Digitus Transversus	0,72525
Uncia	0,967
Palmus minor	2,901
Pes	11,604
	Feet
Palmipes	1,20875
Cubitus	1,4505
Gradus	2,4175
	Paces
Passus	0,967
Stadium	120,875
Milliare	967,0

Scripture Measures of Length

	Inches
Digit	0,7425
Palm	2,97
Span	8,91
	Feet
Lesser Cubit	1,485
Greater Cubit	1,7325
	Yards
Fathom	2,31
Ezekiels Reed	3,465
Arabian Pole	4,62
Schoenus	46,2
Stadium	231,0
Sabbath days Journey	1155,0
	Miles
Eastern Mile	1,386
Parasang	4,158
Days Journey	33,264

Grecian Measures of Length

	Inches
Δακτυλος	,07 5546875
Δωρον	3,021875
Δοχμη	
Λυχας	7,5546875
Ορ θοδωρον	8,31015625
Σπιθαμη	9,066562 5
Πους	12,0875
Πους	1,00729 $\frac{1}{6}$
Πυγμη	1,133203125
Πυγων	1,259114583
Πυχυς	1,5109 3-5
	Paces
Ορυγυια	1,00729 $\frac{1}{6}$
Σταδιος / Δυλος	1007 29 $\frac{1}{6}$
Μιλιον	805,8 $\frac{1}{3}$

Roman Measures for Things Dry

Hemina	0,5074 Pints
Sextarius	1,0148 Pints
Modius	1,0141 Pecks

Attick Measur For Things Dry

Ξεστης	0,9903 Pints
Χοινιξ	1,4856 Pints
Μεδιμνος	1,0 90 6 Bushels

Iewish Measures for Things Dry According to Iosephus

Gachal	0,19 49 Pints
Cab	3,8 7 4 Pints
Gomer	7,0 1 5 2 Pints
Seah	1,4 6 1 5 Pecks
Ephah	1,0 961 Bushels
Letech	5,4 807 Bushels
Coron / Chomer	1,3 7 0 2 Quarters

Roman Measures for Things Liquid

Hemina	0,5 97 5 9 Pints
Sextarius	1,1 9 5 1 8 Pints
Congius	7,1 7 1 2 Pints
Urna	3,5 8 5 7 Gallons
Amphora	7,1 7 1 2 Gallons
Culeus	2,27 $\frac{2}{3}$ Hogsheads

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Artick Measures for Things Liquid

Κοτύλη	0,5742 Pints
Ξέστης	1,1483
Χοῦς	6,8900
Μετρητής	10,3350 Gallons

Iewish Measures for Things Liquid According to Iosephus

Caph	0,8612 Pints
Log	1,1483
Cab	4,5933
Hin	1,7225 Gallons
Seah	3,4450
Bath	10,3350
Corr	1,6405 Hogshead

Drachma or Denarius in Fractions of a lib Sterling

1	,032291667
2	,064583333
3	,096875000
4	,129166667
5	,161458333
6	,193750000
7	,226041667
8	,258333333
9	,290625000

Sestertius in Fraction of a Lib Sterling

1	,008072916 67
2	,016145833 33
3	,024218750 00
4	,032291666 67
5	,040364583 33
6	,048437500 00
7	,056510416 67
8	,064583333 33
9	,072656250 00

The Ancient Arabian Weights Reduced To Troy Weights

											Lib	Ounc	Pen^{wt}	Grains
										kestuf	00	00	00	$01\frac{29}{35}$
2										kirat	00	00	00	$03\frac{1}{17}$
4	2									Danich	00	00	00	$06\frac{1}{14}$
6	3	$1\frac{1}{2}$								Onolofsat	00	00	00	$09\frac{3}{28}$
12	6	3	2							Garme	00	00	00	$18\frac{3}{14}$
36	18	9	6	3						Darchmi	00	00	02	$00\frac{9}{14}$
$41\frac{1}{7}$	$20\frac{4}{7}$	$10\frac{2}{7}$	$6\frac{6}{7}$	$3\frac{3}{7}$	$1\frac{1}{7}$					Denarius	00	00	02	$14\frac{25}{70}$
144	72	36	24	12	4	$3\frac{1}{2}$				Sextarium	00	00	09	$02\frac{4}{7}$
288	144	72	48	24	8	7	2			Sacros	00	00	18	$05\frac{1}{7}$
3456	1728	864	576	288	96	84	24	12		Ratel	00	10	18	$10\frac{5}{7}$
4608	2304	1152	768	384	128	112	32	16	$1\frac{1}{3}$	Mans Alcatieu	01	02	11	$10\frac{2}{7}$

Modern Measures &

Measures of Length of Several Countrys taken from Greaves Arcot Beard and Esenschmid Reduc'd to English Feet & Inches.

		Inches
English foot	1000	12.
Paris foot	1068	12,816
Venetian foot	1162	13,944
Rhinland foot	1033	12,396
Strasburgh foot	952	11,424
Norimbergh foot	1000	12.
Dantzick foot	944	11,328
Danish foot	1042	12,504
Swedish foot	977¾	11,733
Derahor Cubit of Cairo	1824	21,888
Persian Arish	3197	38,364
Greater Turkish Pike	2200	26,4
Leser Turkish Pike	2131	25,572
Braccio at Florence	1913	22,956
Braccio for Woolen at Siena	1242	14,904
Braccio for Linen at Siena	1974	23,688
Canna at Naples	6880	82,56
Vera at Almaria & Gibraltar	2760	33,12
Palmo di Architetti at Rome	732	8,784
Canna di Architetti	7320	87, 84
Palmo di Braccio di Mercantia	695½	8,346
Genoa Palm	815	9,78
Bolognian foot	1250	15.
Antwerp Ell	2283	27,396
Amsterdam Ell	2268	27,216
Leyden Ell	2260	27,12
Paris Drapers Ell	3929	47,148
Paris Mercers Ell	3937	47,244

The Following Weights are From Esenschmid Given in Troy Grains.

	Grains
Strasburgh Ounce	454 ¾
Strasburgh pound of 16 Ounces	7276
Norimbergh Ounce	491 ⅞
Norimbergh pound of 16 Ounces	7870
Paris Medicinal pound of 12 Ounces	5670
the Medicinal Ounce in Germany	460 ⅔
The Carat for Weighing Diamonds	15 1 ⅜

A Table of the Gold & Silver *Weights of Several Countrys from Greaves given in Troy Grains English.*

	Grains
Roman Ounce	438
Roman pound of 12 Ounces	5256
Spanish Ounce	443½
Spanish pounds of 16 Ounces	7090
Venetian Ounce	460 ⅜
Venetian pounds of 12 Ounces	5528
Neapolitan Ounce	412½
Neapolitan pound of 12 Ounces	4950
Ounce at Florence, Pisa & Leghorn	440½
Their pound of 12 Ounces	5286
Ounce at Siena	431½
Siena pound of 12 Ounces	5178
The Ounce at Genoa	405½
The Dutch Ounce	570
The Turkish Okey of 400 Silver Drachms	9128
The Silver Drachm in Turkey, Persia and the Moguls Country	247 41/50
The Turkish Sultani, or Egyptian Sherif, being a Gold Coin of the Same weight with y Venetian and Barbary Chequeen & Norimbergh Ducat	53½
The Cairo Ratel of 144 Drachms	6886 ⅖
The Damascus Ratel of 720 Drachms with which it's Suppos'd they formerly weigh'd their Gold & Silver	34430 ⅖

The French Weights Reduc'd to Troy Weights

											lb	Oun	Pw	Grs
										Grain	0	0	00	00 105/147
								7 1/3		Felin	0	0	00	0 55/72
							14 2/5	2		Maille	0	0	00	11 19/30
						24	3 1/3	1 2/3		Denier	0	0	00	19 11/15
					28 4/5	4	2	1 1/5		Esterlin	0	0	00	23 5/6
				72	10	5	3	2 1/2		Grosse	0	0	02	11 1/12
			576	80	40	24	20	8		Ounce	0	0	19	16 1/2
		4608	640	320	192	160	64	8		Marc	0	7	17	12
	9216	1280	640	384	320	128	16	2		Pound	1	3	15	00

N B. The Cologn Weights are used through all Germany in weighing Gold & Silver

The Cologn Weights Reduc'd to Troy Weights.

						Oz.	Penw.t	Gra.
Es						00	00	00 $\frac{3}{4}$
32	Englisch					00	00	23 $\frac{3}{4}$
76	2 $\frac{3}{8}$	Drachm				00	02	08 $\frac{13}{32}$
304	9 $\frac{1}{2}$	4	Lothig			00	09	09 $\frac{11}{16}$
608	19	8	2	Ounce		00	18	19 $\frac{3}{8}$
4864	152	64	16	8	Marc	07	10	11

Paris Measures Eng. Wine Measure.

Chopine	1 *Pint*
Pint	2 *Pints*
Sextier	2 *Gallons*
Muid	1 $\frac{1}{7}$ *Hogshead*

Strasburgh Measures

	Pints
Schoppen	0,8171
Pint	1,6342
Maßen	3,2684
Ohman	98,0520
Fuder	2353,2500

OTHER MEASURES.

Paris Boisseau = 78534 Solid Inches = 1 $\frac{4}{9}$ Peck nearly.
Strasburgh Statt Sester = 1125434 Solid Inches = 2 $\frac{1}{15}$ Pecks.
Strasburgh Land Sester = 1160664 Solid Inches = 2 $\frac{5}{38}$ Pecks.
The Arpenne or French Acre = 55206 Square English Feet = 1 $\frac{1}{4}$ English Acre.
The Strasburgh Acre = 21751 Square English feet about half an Eng. Acre.

The Vessel in Germany called Weedor made use of for keeping the Renish and Mosel Wines doth Ordinarily contain 14 Anmes of Amsterdam, or 2 English Tuns

The Anme of Amsterdam contains 8 Steckans or 20 Verges or Vertrels being what in England is called a Tierce or $\frac{1}{6}$ of a Tun of France or $\frac{1}{7}$ of an Eng. Tun
The Steckan contains 16 Mingles, each of which make two Pints English
The Hogshead of Bourdeaux according to the just measure thereof, should contain 12 $\frac{1}{2}$ Steckans or 200 Mingles of Wine and Lee, and 12 Steckans or 19 $\frac{1}{2}$ Mingles clear Wine that is about $\frac{4}{5}$ of an English Hogshead
The Bourdeaux Tun of Wine should weigh with the Hogshead 2000 Pound and in Terms of Marine in Fraighting of Ships by a Tun is meant 2000 weight there being reckon'd 112 pound to the Hundred.
A Tun of France Contains 3 Muids or 3 $\frac{3}{7}$ English Hogsheads, that is $\frac{6}{7}$ of an English Tun.

The Assays Weights & Values of Several Foreign Silver Coines

	Assay	Weight	Stand. w	Value
		dwt. gr.	dwt. gr.	li. s. d.
The Pistre of Spain or Sevill piece of 8 Reals now reduc'd to ten	W. 1	17 12	17 10	2 4
The new Sevil piece of eight	W. 1	14	13 23	1 19 11
The Mexico piece of eight	W. 1	17 10	17 08	2 4 8
The Pillar piece of eight	Sta.	17 09	17 03	2 4 6
The Peru piece of eight coarser but of uncertain Allay				
The old Ecu of France or piece of 60 Sols Turners	W. 1	17 12	17 10	2 4 4
The new Ecu of France or piece of 3 Livres or 100 Sols	W. 1	19 14	19	
N.B. The Ecu of France should be 4 worse by Law				
The Crusado of Portugal or Ducat worth 400 Reis now marked and rais'd to 480 Reis	W. 2	21 04	21 15	2 13 3
The Patacks or Patagons of Portugal worth 320 Reis now mark'd & rais'd 360				
The Ducaton of Flanders or piece of 60 Sols or Patars	W. 4½	20 22	21 08	2 16 6
The Patagon of Flanders or 6 rix Dollar or piece of 48 Patars	W. 12	16 04	16 18	2 3 9
The Ducaton of Holland or piece of 63 Stivers	W. 3	20 21	20 23	2 13 9
The Patavon Leg Dollar or Rix Dollar of Holland or piece of 30 Stivers	W. 14	18	16 20	2 2 8
The three Guilder piece of Holland or piece of 60 Stivers	W. 2	20 08	20 23	2 12 6
The Guilder florin or piece of 20 Stivers	W. 2	6 18		
The two Schelling piece of Zeland or piece of 60 Stivers	W. 2	20 00	20 12	2 12
The Lion Dollar of Holland or ⅓ of the Ducaton	W. 14	6 14	6 22	0 17 6
The Ducaton of Gelloon	W. 3	20 18	21 00	2 15 01
The Rix Dollar or Patavon of Gelloon	W. 14	18 0	18 22	2 3 3
The Rix Dollar or Patavon of the Bishop of Liege	W. 12	17 22	18 02	2 2 4
The Rix Dollar of Mentz	W. 6½	18 08	18 19	2 3 3
The Rix Dollar of Frankfort	W. 9	18 08	18 14	2 3 3
The Rix Dollar of the Elector Palatine of ye Rhine & Bavaria before 1620		18 25		
The Rix Dollar of Nurenberg	W. 6	18 10	18 22	2 3 3
The old Rix Dollar of Lunamberg	W. 10	18 11	19 05	2 3 6
The old Rix Dollar of Hannover	W. 8	18 12	19 02	2 3 8
The double Gulden of the Elector of Hannover	W. 7	18 16	19 06	2 3 9
The Gulden of the Elector of Hannover or piece of 3	W. 5½	18 10	19 01	2 3 4
The half Gulden of the Elector of Hannover or piece of	W. 5½	4 05	4 12	0 14 0
The Gulden of the Duke of Zell or piece of 16 Gutz Groth	W. 4½	11 02	11 22	1 7 0
The Gulden of the Bishop of Hildesham or piece of 24 manen Groth now raisd to 26	W. 4½	11 22	12 17	1 9 2
The Rix Dollar of Magdeburgh	W. 12	18 12	19 00	2 3 2
The Gulden or Guilder of Magdeburgh	W. 4½	6 14	6 16	0 16 0
The old Rix Dollar of the Elector of Brandenburgh	W. 9	18 13	19 01	2 3 1
The old Gulden of Brandenburgh now raisd from 24 to 26 Manen Groth	W. 4½	12 04	12 16	1 9 4
The Gulden of Brandenburgh or piece of ⅓	W. 4½	11 05	11 23	0 17 6
The half Gulden of Brandenburgh or piece of ⅓	W. 4½	5 13	4 11 14	0 13 09
The Gulden of the Elector of Saxeony or piece of ⅓	W. 4½	11 03	9 11 14	0 16 12
The old Bank Dollar of Hamburgh	W. 8	18 09	18 17	2 3 02
The old Rix Dollar of Lubec	W. 8½	18 10	19 22	2 3 3 4
The four mark piece of Denmark of coarser allay	W. 6½	14 08	14 20	1 12 3
The four mark piece of Denmark of finer allay	W. 7½	14 13	14 23	1 13 4 5
The eight Mark piece of Sweden	Sta.	38	39 20	3 6 2
The four Mark piece of Sweden	W. 5½	9 12	9 23 17	0 19 3
The two Mark piece of Sweden	W.	4 19		
The old Dollar of Dantzig	W. 10½	18 09	17 12	2 4 4 2 7
The old Rix Dollar of Thorn near Dantzig	W. 12	18 08	17 08	2 3 2 5
The Rix Dollars of Sigismund III & Vladislaus IV Kings of Poland	W. 10	18 09	17 13	2 4 5 04
The Rix Dollar of the late Emperor Leopold	W. 10½	18 09	17 11	2 4 4 2 7
The Rix Dollar of his Predecessor Ferdinand III	W. 10½	18 09	17 11	2 4 4 2 7
The Rix Dollar of Ferdinand Arch Duke of Austria	W. 10½	18 08	17 08	2 3 7 8
The Rix Dollar of Bazil	W. 7½	18 08	17 06	2 3 6 24
The Rix Dollar of Zame	W. 15	18 08	16 23	2 3 6 5
The old Ducat of Venice with St. Mark & Venetus Dux				
Venetus upon it a piece of Gold Lira of the same valued 1 blank to 6 Lires 4 Sols 16 Picoli	W. 23½	4 15	13 01	1 14 9
The half Ducat	W. 23½	2 07	6 12	0 16 2 5
The new Ducat with the Number 124 upon it Signifying 124 Sols or 6 Lires 4 Sols 16 Picoli		18 02		
The half Sherif		9 01		
The Crusado Ducat or St. Mark of Venice with the Number 140 upon it Signifying 140 Sols or 7 Lires 16 Picoli		20 06		
The half Crusado of the same form		10 03		
The quarter Crusado of the same form		5 01		
Another Coin of Venice	W. 46	05 10	13 19	0 16 5
The piece of two Giules	B. 6	3 15	3 17	0 9 3
The Ducat de Bonice of Naples or piece of 15 Tarins or 10 Carlins or 100 Grains	W. 3	14 0	13 22	0 16 4
The half Ducat	W. 3	7 00	6 22	0 8 2
The Tarin or fifth part of the Ducat	W. 3	2 16	2 14	0 3 09
The Carlin or tenth part of the Ducat	W. 5	1 08	1 07	0 1 04
The Scudo Ecu or Crowne of Rome or piece of 10 Giulies or 100 Bajocchos		20 14		
The Testone of Rome or piece of 3 Giulies	W. 1	5 20	5 20	0 0 2
The Ducat of Florence & Leghorne or piece of 7 Lires or 10 Giulies	B. 8	20 03	20 20	0 6 4 6
The Julio of Rome		2 05		
The Master Ecu or Crowne of Ferdinand II Duke of Tuscany	W. 1	17 12	17 10	2 3 4
The Master Ecu or Crowne of Cosmus III present Duke of Tuscany whose money are called 4 Pf. Lights then those of his Fathers this piece is 8½ Giulias	W. 1	16 18	16 16	2 3 1 6
The Crovisat of Geneva or piece of 7½ Liras	B. 7	24 15	25 03	0 16 7
The Ecu d'argent of Geneva or piece of 5 Liras 18 Sols				
The Master Ecu or Crowne of Milan		17 21		
The Philip of Milan a piece of 7 Lires		20 20		
The Lisere or 20 Sols piece of Savoy		3 22		
The ten Sols piece of Savoy		1 23		
A Rouque		18 06	17 10	
A Gout Gulden or Florin Ecu a Dutch Coin of Utrecht	W. 5½	12 04		
Another Gout Gulden	W. 4½	10 20		
Another	W. 4½	12		

Gold Monies Unworne

	Assay	Weight	Stand. w	Value
		dwt. gr.	dwt. gr.	li. s. d.
The old Lewidor	W. 0½	4 08	4 07	0 16 1
The half and quarter in proportion	W. 0½	2 04	2 03	0 8 0 5
The new Lewidor	W. 0½	4 05	3 23	0 16 0 4
The half & quarter in proportion	W. 0½	2 02	2 01	0 8 0 2
The old Spanish double Doubloon	W. 0½	17 08	17 05	2 18 6
The old Spanish double Pistole	W. 0½	8 16	8 14	1 9 3
The old Spanish Pistole	W. 0½	4 08	4 07	0 18 1
The new Sevil double Pistole	W.	8 16		
The new Sevil Pistole		4 08		
The half & quarter in Proportion				
The Doppia Moeda or double Moeda of Portugal new Coined	W. 0½	6 22	6 21	0 15 6 1
The Doppia Moeda as they came into England	W. 0½	6 21	6 20	0 15 5 6
The Moeda of Portugal	W. 0½	3 11	3 10	0 7 3 9
The half Moeda	W. 0½	1 17	1 17	0 3 10 2
The Hungary Ducat	B. 2	2 05	2 03	0 9 6 3
The Ducat of Holland Coined at Leyden Surety	B. 2	2 05	2 03	0 9 5 9
The Ducat of Campen in Holland	B. 2	2 05	2 03	0 9 5 9
The Ducat of the Bishop of Bamberg	B. 2	2 05	2 03	0 9 5 9
The Double Ducat of the Duke of Hannover	B. 2	4 10	4 17	0 18 10 4
The Ducat of the Duke of Hannover	B. 2	2 05	2 08	0 9 5 4
The Ducat of Brandenburgh	B. 2	2 05	2 03	0 9 5 9
The Ducat of Sweden	B. 2	2 05	2 03	0 9 5 9
The Ducat of Denmark	B. 2	2 05	2 03	0 9 5 9
The Ducat of Poland	B. 2	2 05	2 08	0 9 4 2
The Ducat of Transilvania	B. 1½	2 04	2 07	0 6 0 2
The Sequin Chapun or Zachino of Venice	B. 3½	2 05	2 10	0 9 8 5
The old Italian Pistole	W. 0½	4 06	4 06	0 17 0 4
The double Pistole of Pope Urban 1634		8 12		
The half Pistole of Innocent II 1685		2 04		
A Double Pistole of Piacenza		8 10		
A Double Pistole of Genoua 1621		8 16		
A Double Pistole of Milan		8 15½		
A Single Pistole of Milan		4 08		
A Pistole of Savoy 1675		4 08½		
Double Ducats of Castille Genoa Portugal Florence Hungary & Venice	B. 2½	4 11		
Single Ducats of the same Places	B. 2½	2 05½		
Double Ducats of Several forms in Germany	B. 1½	4 11		
Single Ducats of the same places	B. 1½	2 05½		
Double Ducats of Genoa	B. 2	4 11	4 18	0 18 0
Single Ducats of Genoa & Bezancon and Turin	B. 2	2 05½	2 10	0 9 0 5 9
Pistole of Rome Milan Venice Florence Savoy Genoa Orange Treves Bezanson	W. 0½	4 06	4 05	0 17 0 11 5
A Barbary Ducat with Arabic Letters on both Sides in Square Tables without any Effigies or Escutcheon	W. 2½	2 16	2 22	0 10 0 2

By S. Isaac Newton.
General Dictionary Vol. 9.
page 002.

OBSERVATIONS

ON

DOCTOR *ARBUTHNOT*'s

DISSERTATIONS

ON

COINS, WEIGHTS, and MEASURES.

By *BENJAMIN LANGWITH*, D.D.
Late Rector of *Petworth* in *Suſſex*.

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To Her GRACE the

Ducheſs of *SOMERSET.*

MADAM,

I OFFER theſe Papers to You, becauſe I have been long deſirous of making a public Acknowledgement of the great Obligations the deceaſed Author and preſent Editor have owed to his Grace of SOMERSET, and Your Self. Was I as able to deſcribe the Variety of Accompliſhments You are Miſtreſs of as I am ready to own the Favours I have received, You are the only Perſon in the World who would read them with Uneaſineſs; but my Incapacity to do Juſtice to Your Virtues, prevents my offending one which gives a Luſtre to all

all the reſt. However, Your Liberality and Benevolence which I have gratefully felt, tho' I cannot ſuitably expreſs, ſhall live imprinted on the Mind of, MADAM,

YOUR GRACE'S

Moſt Obliged,

and moſt Obedient

Humble Servant,

Sarah Langwith.

OBSERVATIONS

ON

DOCTOR *ARBUTHNOT*'s

DISSERTATIONS

ON

COINS, *WEIGHTS*, and *MEASURES*.

I AM very much obliged to Dr. *Arbuthnot* for giving me more Light into many curious Subjects, than I could have had without much Expence of Time and Labour. But this has not hindered me from making the following Strictures upon ſome Parts of his Work, in Hopes that one time or other they may contribute to its being brought to more Exactneſs and Perfection.

CHAP. I.

Of the ROMAN *Pound.*

I AM ſorry to find, upon reading his Chapter of the *Denarius*, *p.* 15, that the *Doctor* has gone upon wrong Principles, and that his Tables of Weights and Coins are not

only loaded with uſeleſs Fractions, but are not ſo near the Truth as might be wiſh'd. The wrong Principles, thoſe I mean which he had from Mr. *Greaves*, are as follow:

1. That the *Roman* Ounce is the ſame with the *Engliſh Avoirdupois*.

2. That the *Engliſh Penny* weighs *eight Grains*.

Mr. *Greaves* has been follow'd in the firſt of theſe Principles, not only by Dr. *Arbuthnot*, but by Biſhop *Hooper* and Mr. *Smith*; tho' I believe it will be eaſy enough to prove it wrong. In order to this, let us firſt find the Value of the *Avoirdupois* Ounce; then that of the *Roman* in Grains Troy.

By an Experiment in *Ward*'s *Young Mathematician's Guide*, *p.* 32, it appears, that a *Pound Avoirdupois* weighs 14 *oz.* 11 *pw.* 15 $\frac{1}{2}$ *gr.* or 6999.5 Grains Troy.

He calls this Experiment a nice one, and I have Reaſon to believe it ſo, for I made the ſame myſelf, and find but a trifle of a Difference.

I fancy Mr. *Greaves* made the ſame Experiment, by weighing a Standard *Avoirdupois* Pound with Troy Weights; and was the firſt who determin'd the Proportion of the *Avoirdupois* Pound to the *Troy* Pound to be as 175 to 144, and conſequently the *Avoirdupois* Ounce to be 437 $\frac{1}{2}$ Grains Troy, which differs very little from the *Avoirdupois* Ounce fetch'd out by Mr. *Ward*'s Pound of 6999.5; for if 6999.5 be divided by 16, the Number of Ounces in an *Avoirdupois* Pound, it will give

The *Avoirdupois* Ounce 437.468, *&c.* Grains Troy, which falls ſhort of the forementiond *Avoirdupois* Ounce 437.5 by only 0.032 of a Grain. The forementiond Proportion alſo is uſed by Biſhop *Hooper*, but whence he had it we are not told. *Vide* Arbuthnot, *p.* 283.

As for Dr. *Arbuthnot*, in order to find the *Avoirdupois* Ounce, which he will have to be the *Roman*, tho' without

any

any manner of Proof, he firſt makes uſe of the Proportion of the *Avoirdupois* Pound to the Troy Pound, as 175 to 144, which would bring out the *Avoirdupois* Ounce 437½ Grains Troy, and being multiply'd by 12 gives what he calls the *Roman* Pound.

Afterwards he changes his Proportion of the Pounds for a much worſe, from Dr. *Wybert*, *viz.* inſtead of 175 to 144, he makes uſe of 17 to 14, throwing off the laſt Figures in the former Numbers.

By this Preparation, the *Avoirdupois* Ounce will come out 437.142 Grains *Troy*, and what he calls the *Roman* Pound 5245.704 Grains *Troy*, which he makes uſe of in his Tables. This new *Avoirdupois* Ounce of his, differs more from the true *Avoirdupois* Ounce, than the Former, for that differed from it only by 0.032 of a Grain, this by 0.326 of a Grain.

The *Avoirdupois* Ounce being thus ſettled at 437.468 Grains *Troy*, let us next enquire after

The ROMAN *Ounce.*

I know no better Way of coming to this, than by the Weight of the *Denarius*; for ſince it is agreed that 7 *Denarii* make an Ounce, if we have the Weight of the *Denarius*, we have that of the Ounce too. The Queſtion is, how we ſhall know the Weight of the *Denarius?* One would think the Anſwer was eaſy. ——By weighing it.

This Mr. *Greaves* has done; and having in *Italy*, and elſewhere, peruſed many hundred *Denarii Conſulares*, he found by frequent and exact Trials, the beſt of them to amount to 62 Grains *Troy* *. Surely this is a more natural

* The *Denarius* is certainly ſet high enough at 62 Grains, and it is not common to meet with one that weighs ſo much. I have but one in my Collection that comes near it; and in that great Number, whoſe Weights Mr. *Thoreſby* ſent to Mr. *Smith*, there is but one of 62 Grains.

tural way of coming at the Weight of the *Conſular Denarius* than the round-about Methods by *Veſpaſian*'s *Congius*, *Inch Meaſure*, &c. The Imperfections of ſome, or all of which, I ſhall ſhew hereafter.

I am ſenſible that Biſhop *Hooper* ſets the *Denarius* at 64 Grains; but I do not know how he could make it out, nor indeed how to reconcile this with his Notions, that the *Avoirdupois* Ounce conſiſts of 437.5 Grains *Troy*, which it muſt do according to the Proportion which he makes uſe of, and the Suppoſal that the *Roman* and *Avoirdupois* Ounces are the ſame; for if the *Roman Denarius* be 64 Grains, the Ounce muſt be $64\times7=448$ Grains *Troy*, which exceeds his *Avoirdupois* or *Roman* Ounce, by no leſs than 10.5 Grains.

We are told of *Denarii* of very large Sizes by Mr. *Thoreſby*; but theſe are nothing to the Purpoſe, ſince he himſelf neither takes them to be Conſular, nor indeed ſo much as ſtruck at *Rome*. Vide *Duc. Leod.*

Dr. *Bernard* is alſo quoted by Mr. *Smith*, *p.* 154, as having ſeen ſome *Denarii* of *Druſus*, which amounted to 62 *gr.* $\frac{4}{7}$. I cannot help taking this to be accidental; however, it may well enough be accounted for. I ſuppoſe they were the *Denarii* of that *Druſus*, who, as we are told by *Pliny*, mixed no leſs than an eighth Part of Braſs with the Silver: So that it is no wonder if he was not ſo nice in his Weight as to trouble himſelf about $\frac{4}{7}$ of a Grain.

I ſhall therefore ſtick to 62 Grains *Troy* for the weight of the *Denarius*, at which Rate the *Roman* Ounce will be 434 Grains *Troy*, the *Roman* Pound 5208 Grains *Troy*, or 10 ℔. 17 *pw. Troy*.

The Difference between the *Roman* and *Avoirdupois* Ounce will now plainly appear: For ſince the *Roman* Ounce contains only 434 Grains *Troy*, but the *Avoirdupois* 437.468, &*c.* the *Avoirdupois* Ounce will exceed the *Roman* by 3.468, &*c.* which does not ſeem to be much in the Ounce, but will make

make a great Difference when it comes to be multiplied by 12, or a greater Number.

Dr. *Arbuthnot*'s Tables of Weights then are imperfect by his making the *Roman* Ounce, and conſequently all the correſponding Weights, too heavy; for according to his Tables, the Ounce ought to be 437.142 Grains *Troy*; ſo that his *Roman* Ounce exceeds the true *Roman* Ounce of 434 Grains by 3.142 Grains *Troy*.

We muſt not yet diſmiſs this Point; for Mr. *Greaves* had ſo ſtrong an Opinion, that the *Roman* Ounce, and *Avoirdupois* Ounce, was the ſame; that not being content with the *Denarius* of 62 Grains, with its correſponding Ounce 434 Grains, he caſts about for a new *Denarius*, whoſe correſponding Ounce might be nearer the *Avoirdupois* Ounce. What this *Denarius* and Ounce were, we ſhall quickly ſee.

In the mean time, I cannot help wondering why Mr. *Greaves*, *&c.* ſhould imagine we had our *Avoirdupois* Ounce from the *Romans*; for,

1. By the Name of it, I ſhould imagine much rather, that we had it from the *French*.

2. If we had the *Avoirdupois* Ounce from the *Romans*, it is ſtrange we had not the Pound too, which then would have conſiſted of 12 Ounces inſtead of 16.

3. It is plain it does not anſwer the Weight of the Conſular *Denarii*. Theſe are to me probable Arguments at leaſt, that the *Romans* did not leave their Ounce in *Britain*, as Dr. *Arbuthnot* aſſerts.

I ſhall now proceed to Mr. *Greaves*'s ſecond *Denarius*, which is 62 $\frac{4}{7}$ Grains *Troy*. This *Denarius* exceeds the Former by $\frac{4}{7}$ of a Grain, which he is obliged to maintain, were loſt in the Coins by the Coinage, *&c.* This *Denarius*

is

is fetched from the *Congius of Veſpaſian*, by *Villalpandus*, in the following manner:

The *Congius* called *Veſpaſian*'s, being marked on the Outſide P. X. is ſuppoſed to have contained ten *Roman* Pounds. This Veſſel *Villalpandus* filled with Water, and found it to contain ten *Roman* Pounds, ſuch as are uſed at preſent in *Rome*. He thence concludes, that the preſent *Roman* Pound, and the ancient *Roman* Pound, are the ſame. His Concluſion would be juſt, was it certain that the *Congius* was exact, and that the Experiments were made with that exquiſite Nicety, that Experiments in weighing of Water, eſpecially in ſuch large cumberſome Veſſels, require. Mr. *Greaves*, upon the Credit of *Villalpandus* [for I do not find that he weighed the Contents of the *Congius* himſelf] took the ancient *Roman* and preſent *Roman* Pound to be the ſame. After this I ſuppoſe he weighed the preſent *Roman* Pound with *Troy* Weights, and found it to contain 5256 Grains *Troy*, and conſequently, that the Contents of the *Congius* being ten Pound, were 52560 Grains *Troy*. Theſe 52560 Grains being divided by 840, the Number of the *Denarii* in 10 *Roman* Pounds, will give $62\frac{480}{840}$, or $62\frac{4}{7}$ for the *Roman Denarius*, whoſe correſpondent Ounce will be 438 Grains *Troy* *.

This Ounce from the *Congius* differs but little from the *Avoirdupois* Ounce 437.468, *viz.* 0.53, *&c.* of a Grain; ſo that they might well enough paſs for the ſame, if ſo near an Agreement had been proved any other way. But I am afraid the Arguments taken from this *Congius* are far from being concluſive, and that for the following Reaſons, which ſurely ſo curious and exact a Perſon as the excellent Mr. *Greaves* could not but have thought of, had he not been prejudiced in favour of an Opinion which is inconſiſtent with them.

* Vide *Ward*'s *Diſſertation de Aſſe*, in *Aynſworth*'s *Monumenta Kempiana*.

them. The Reaſons why I think the Arguments from the *Congius* inconcluſive are,

I. In general, becauſe I think no Water Meaſure can be exact, and that,

1. Becauſe different Waters have different Weights, Rain-Water differs from Spring-Water, and the Water of one Spring from that of another.

2. Becauſe the Weather makes an Alteration in the Weight of Water, ſince, according to Mr. *Homberg*, the ſame Quantity of Water [I ſuppoſe he means of the ſame Kind of Water] which in Winter weighed 474 Grains, weighed in Summer only 470 Grains, and conſequently loſt ſomething above $\frac{1}{118}$ Part of its Weight. *Vide* Arbuthnot, *p.* 82.

3. Becauſe there is much Difficulty in filling Veſſels with Water to great Exactneſs; for if the Veſſel be well dried and cleanſed with Bran or Flower, the Water will ſtand in a Crown above the Brims, and be heavier than the Dimenſions of the Veſſel require; but if this Water be taken off with a Strike, it will not touch the Brims of the Veſſel, and ſo be lighter than the Dimenſions of it require. Thus much as to the Uncertainty of Water-Meaſure in general. I come to conſider,

II. Why Arguments from this *Congius*, in particular, are inconcluſive; and that,

1. Becauſe it is neither rectangular nor cylindrical, but bulges out in the Belly, and therefore could never be deſigned for an exact Meaſure, ſince without a great deal of Trouble, Part of the Liquor in pouring it out would be left behind. Perhaps they made it larger than ordinary, partly to allow for this Inconvenience, and partly to allow for the

Liquor

Liquor that might be daſhed about in pouring it in and out; for that it was larger than ordinary, is certain;

3. Becauſe the *Denarius* and Ounce taken from it are larger than ordinary.

4. Becauſe the Foot taken from it is larger than ordinary; for the Foot taken from this *Congius* would be 11.84 Inches, differing from the *Coſſutian* Foot by an Exceſs of near $\frac{1}{5}$th of an Inch. *Vide* Arbuthnot, *p.* 81.

5. What is worſt of all, it is ſuſpected to be ſpurious. *Vide Gruter Inſcript.* vol. 1. *p.* 233. Though no Reaſons are offered there why it is ſuſpected, yet to ſay nothing of the abſurd improper Figure of it, I think a very good Argument to prove it a Counterfeit may be taken from the Inſcription upon it, which runs thus:

IMP. CAESARE
VESPAS. VI. COS
T. CAES. AVG. F. IIII
MENSVRAE
EXACTAE IN
CAPITOLIO
P. X

To ſay nothing of the other Parts of the Inſcription which are ſuſpicious enough, the Omiſſion of COS in the third Line before IIII. is ſufficient for me to judge it ſpurious. I think at leaſt, it is not of Authority enough to ſupport the Notion grounded upon it, that the *Avoirdupois* and *Roman* Ounces are the ſame. I have alſo ſhewed the Miſchief that Dr. *Arbuthnot* has done his Tables by falling into this Error.

There is ſtill another Eſtimate of the *Denarius* at *p.* 15, from a Model of the *Congius* of *Veſpaſian*, which is hardly worth mentioning. This makes the *Denarius* $62\frac{361}{431}$, or 62.839 Grains *Troy*. At this Rate, the Ounce will be 439.873, and the Pound 5278.476 Grains *Troy*.

By

By ſetting, as I have done, the *Roman* Ounce at 434 Grains *Troy*, and the *Roman* Pound at 5208 Grains *Troy*, neither the Ounce nor the Pound are incumbered with Fractions, which cannot be ſaid either of Dr. *Arbuthnot*'s Ounce or Pound.

It may perhaps create a Prejudice to my Eſtimate of the *Roman* Ounce and *Denarius*, when it is conſidered that ſuch great Men as Mr. *Greaves*, Biſhop *Hooper*, and Dr. *Arbuthnot* have ſet them higher than I have done. In order to balance theſe great Authorities, I ſhall take in the Aſſiſtance of *Lucas Pætus*, and *Savotus*, two very learned Men, and curious Obſervers, whoſe Ounce and *Denarius* are much lower than mine.

1. As to *Pætus*, he tried a very nice Experiment with an Amphora, made by the *Roman* Foot, and a proportionable *Sextarius*, of which an Account may be met with in *Ward de Aſſe*, p. 48. The Reſult of his Experiment was, that the *Roman* Pound conſiſted of 5000.5 Grains *Troy*. This Pound, which is lighter than Mr. *Greaves*'s of 5256 by 255.5 Grains, will give the Ounce 416.708 Grains, and the *Denarius* 59.529 Grains *Troy*.

2. *Savotus* makes this ſtill too much, and by weighing many Gold and Silver Coins, concludes, that 68 of our Grains *Troy* are to be taken from *Pætus*'s Pound, in order to bring it right. Thus his *Roman* Pound will be 4932.5, his Ounce preciſely 411.041 Grains *Troy*, his *Denarius* 58.72 Grains *Troy*.

Pætus's Pound of 5000.5 falls ſhort of mine 5208 by 207.5 Grains *Troy*.

Savotus's of 4932.5 Grains *Troy* falls ſhort of mine by 275.5: So that according to them my Pound is much too large; and inſtead of falling ſhort of Mr. *Greaves*'s, by only 48 Grains *Troy*, it ought to do it by 4 or 5 times as much.

The ſame may be ſaid in Proportion of the Ounce and *Denarius*.

I ſhall not however quit my Eſtimate of the Ounce, &c. for either of theirs.

1. Not for *Pætus*'s: I do not doubt of the exceeding great Care and Exactneſs of *Pætus*; but, for Reaſons given before, I cannot think Water-weight any thing near ſo exact as ſolid Weight. But there is another Objection againſt his Eſtimate; for it is very doubtful whether the Amphora from the Foot be exact. It certainly comes near the Amphora found by Weight, but cannot be proved to be the ſame. *Vide* Biſhop *Hooper* in *Arbuthnot*, p. 81. It ſeems to be ſomething leſs, and ſo brings down the Weight of the Ounce, &c.

2. As to *Savotus*, he is an Adverſary worſe to manage, for his exquiſite Nicety about Coins is well known; and he fetched out his Pound, &c. by weighing Gold and Silver Coins; ſo that it is ſtrange that his *Denarius* ſhould differ ſo much from Mr. *Greaves*'s of 62 Grains *Troy*. All that I can ſay to it is, that either the Coins he met with were not ſo perfect as Mr. *Greaves*'s, or elſe, that having weighed ſeveral, he choſe to ſet them at ſome middle Rate, rather than at the higheſt or the loweſt.

I ſhall juſt take notice, that the *As Libralis*, even when fair, does not weigh above 9 Ounces *Troy*, which is a probable Argument, at leaſt, that my Pound is not ſet too low at 10 $\frac{3}{5}$, 17 *pw.*

Several of theſe Particulars may be ſeen in Mr. *Ward*'s *Diſſertation de Aſſe*, in *Monument. Kempian.* from *p.* 46, to *p.* 62. And yet after all, this Author chuſes to ſtick to Mr. *Greaves*'s Computation; and that for a very odd Reaſon, *viz.* that it is uſed by our Authors, particularly Dr. *Arbuthnot*; as if it was not better to correct our Authors, and, particularly,

Dr.

Dr. *Arbuthnot* as well as the reſt, than follow them in their Errors.

The Computation that he talks of, is that which ſets the *Denarius* as $62\frac{4}{7}$ Grains *Troy*, and the Penny at 8 Grains; which latter is undoubtedly falſe, as I ſhall ſhew, after having given the Pounds, Ounces, and *Denarii* mention'd in theſe Papers at one View.

	Pound.	*Ounce.*	*Denarius.*
Greaves's Computation from *Villalpandus* gives, - - -	5256	438	$62\frac{4}{7}$
Dr. *Arbuthnot*'s, - - - - -	5245.752	437.142	62.448
Mine from the *Denarius* - -	5208	434	62
Pætus's, - - - - - - - -	5000.5	416.708	59.529
Savotus's, - - - - - - - -	4932.5	411.041	58.72
Another in *Arbuthnot*, - - -	5250	437.5	62.5

I wonder the *Doctor* did not ſtick to this Pound, which is a whole Number, eſpecially, ſince the Ounce of it is near the *Avoirdupois* Ounce, which he takes to be the *Roman*.

The Difference between his Pound of 5245.752, *&c.* mine 5208 is 37.752, *&c.* Grains *Troy*, which is little more than $\frac{1}{152}$ of a Pound *Troy*; conſequently in a little more than 152 Pounds Weight, his would exceed mine by a Pound *Troy*. I think I have proved mine to be the true *Roman* Pound; and if I have, it is plain that his is too heavy. It is plain alſo from what went before, that his Over-weight was chiefly owing to his following Mr. *Greaves* in his Notion, that the *Roman* Ounce and *Avoirdupois* Ounce are the ſame.

I ſhall now give an Account of the *Roman* Weights according to my Computation, and then ſhall proceed to the Conſideration of his ſecond general Miſtake, which has ſpoiled his Tables of Money, as the firſt did thoſe of Weight.

		Gr. Troy.	℥	*Pwt.*	*gr.*
My *Roman* Pound, is - -		5208	10	17	00
Ounce, - -	$\frac{1}{12}$	434	00	18	02
Duella, - -	$\frac{1}{36}$	$144\frac{2}{3}$	00	06	$00\frac{2}{3}$
Sicilicus, - -	$\frac{1}{48}$	$108\frac{1}{2}$	00	04	$12\frac{1}{2}$
Sextula, - -	$\frac{1}{72}$	$72\frac{1}{3}$	00	03	$00\frac{1}{3}$
Drachma, - -	$\frac{1}{96}$	$54\frac{1}{4}$	00	02	$06\frac{1}{4}$
Scriptulum -	$\frac{1}{288}$	$18\frac{1}{2}$	00	00	$18\frac{1}{2}$
Obolus, - -	$\frac{1}{576}$	$9\frac{1}{24}$	00	00	$9\frac{1}{24}$
Siliqua, - -	$\frac{1}{1728}$	$3\frac{1}{72}$	00	00	$3\frac{1}{72}$
Lens, - -	$\frac{1}{6912}$	$0\frac{217}{288}$	00	00	$0\frac{217}{288}$

I am aware that it would have been better to have thrown the common Fractions into the Decimals in this Table; but I have drawn it up in this manner to make it more eaſy to be compared with Dr. *Arbuthnot*'s.

This over-rating the *Roman* Weights, will occaſion Diſorder in the Eſtimate of the Meaſures both wet and dry.

CHAP.

CHAP. II.

Of the Value of ROMAN *Money in* ENGLISH *Coin.*

I SAID in the Beginning of the last Chapter that the *Doctor*'s Tables of Coins are not so exact as might be wish'd, which was partly occasion'd by his following Mr. *Greaves* in two Inaccuracies. The first has been treated of.

The second is, That he has set the *English* Penny at 8 Grains *Troy*, and in consequence the *Denarius* at 7 *d.* $\frac{3}{4}$ *English*; which is too low.

If a Pound Sterling of Silver was coin'd into 60 Shillings, or what is the same thing, the Ounce of Silver, into 60 Pence, then indeed the Penny would be 8 Grains *Troy*.

For as 60 *d.* : 480 *gr.* : : 1 *d.* : 8 *gr.* thus also
as 480 *gr.* : 60 *d.* : : 62 *gr.* : 7 *d.* $\frac{3}{4}$

Both Dr. *Arbuthnot* and Mr. *Greaves*, knew well enough that an Ounce was coin'd into 62 Pence; but in order to save a little Trouble in Calculation, set it at 60 Pence. They would have saved a great deal more Trouble by setting it right; since by that the *Denarius* would have come out at about 8 *d.* the *Quinarius* at 4 *d.* and the *Sestertius*, by which all great Sums are estimated, at the round Number 2 *d.* which may be thus made out.

If 480 the Number of Grains *Troy* in an Ounce give 62 Pence, then will 62 Grains, which are contain'd in a *Denarius*, give $\overset{d.}{8}.008$, &c.

As

	gr.	*d.*	*gr.*	*d.*
As	480	: 62	: : 62	: 8.008, or,
As	480	: 62	: : 62	: 8 $\frac{1}{120}$

The Fraction 0.008 or $\frac{1}{120}$. may well enough be omitted, tho' in 120 *Denarii* it would amount to an *Engliſh* Penny. It is certain from *Pliny*, Edit. *Hard. Tom.* I. *p.* 627, *Fol.* that the Mint-Maſters did not always make the *Denarii* of the juſt Weight, which perhaps may be one Reaſon why amongſt the many fair *Conſular Denarii*, as they are called; ſo few come up to the Weight of 62 Grains *Troy*.

I ſhall conclude therefore, that the *Denarius* is 8 Pence, that it is ſet a Farthing too low at 7*d.* $\frac{3}{4}$, and the *Seſtertius* a Quarter of a Farthing too low at 1 *d.* 3*f.* $\frac{3}{4}$.

A Quarter of a Farthing ſeems to be an inconſiderable Thing; but when it comes to be multiplied, as the Sums which we often meet with in the *Roman* Hiſtory require, it will then appear to be of more Conſequence. I ſhall inſtance only in *Centies H. S.* which was no uncommon Eſtate among the *Romans* after the Conqueſt of *Carthage*, *Greece*, *Aſia*, &c. *Centies H. S.* ſuppoſing the *Seſtertius* to be 1 *d.* 3*f.* $\frac{3}{4}$, would amount to 80729*l.* 3*s.* 4*d.* but ſetting the *Seſtertius* $\frac{1}{4}$ of a Farthing higher, or, in other Words, at 2*d.* the Sum will be 83333*l.* 6*s.* 8*d.* the Difference 2604*l.* 3*s.* 4*d.*

The former Concluſion will be confirm'd, by conſidering what the real Weight and Value of the 60 Pence or Crown, and Penny will be, when the Ounce is coin'd into 62 Pence: The Value of the Crown in this Caſe will be no more than 58 *d.* and about $\frac{1}{4}$ of a Farthing, the Weight of it no more than 19 *pw.* 8 *gr.* $\frac{1}{31}$, with ſome exceeding ſmall Fraction. The Penny at the ſame Rate will be no more in Value than 3*f.* $\frac{54}{62}$, ſuppoſing the Ounce to be 60 Pence, nor in Weight than 7*gr.* $\frac{46}{62}$, or 7 *gr.* 74, *&c.* ſo that it was over-rated in Weight by

by Mr. *Greaves* and Dr. *Arbuthnot*, something more than a Quarter of a Grain, *viz.* $\overset{gr.}{0}\ 26$; which in 8 *d.* would amount to $\overset{gr.}{0.26} \times 8 = \overset{gr.}{2.08}$, something above a Farthing.

The *Denarius* being thus settled at 8 *d.* of our Money, the *Roman Libra* of Silver 5208 Grains *Troy* will be $\overset{d.}{8} \times 7 \times 12 = \overset{s.}{672} = \overset{l.}{56} = 2\ 16\ 0$.

	l.	*s.*	*d.*	*f.*
Denarius, - - - - -	0	0	8	0
Quinarius, - - = $\frac{1}{2}$	0	0	4	0
Sestertius, - - - = $\frac{1}{4}$	0	0	2	0
As, - - - - = $\frac{1}{10}$	0	0	0	$3\frac{1}{5}$
Sembella, - - = $\frac{1}{20}$	0	0	0	$1\frac{3}{5}$
Teruntius, - - - = $\frac{1}{40}$	0	0	0	$0\frac{4}{5}$

Mr. *Smith* has calculated a large Table of *Roman* Sums, at the Rate of 2 *d.* the *Sestertius*. I wish this had been done by a more exact Author; for his Numbers are so faulty in many Parts of his Book, that I am afraid the Tables are hardly to be depended upon.

CHAP.

CHAP. III.

Further Conſiderations upon the VALUE *of the* DENARIUS.

I THINK the *Denarius* is rightly adjuſted to our Money in theſe Papers; but it is upon a Suppoſition that the *Denarius* is of its juſt Weight 62 Grains *Troy*, and of the ſame Fineneſs of the *Engliſh* Coin; for a Difference in either of theſe Particulars muſt occaſion an Alteration in the Eſtimate.

As to the former of theſe; 'tis certain that many of the *Roman Denarii* fall ſhort of this Weight by ſeveral Grains, which yet might have had it at their firſt Coinage, ſuch a Loſs being eaſily accounted for by wearing, and other Accidents, in ſo many Hundred Years. It is no more, in very many of them, than what has happened to a leſs Coin of our own in a very few Years; for I have juſt now weigh'd an *Engliſh* Sixpence of King *William*'s, that has loſt ſeven Grains of its due Weight, and I don't doubt but that there are many which have loſt eight.

I cannot, however, be certain that all the *Denarii* had their juſt Weight even in the Time of the Conſuls, from a remarkable Place in *Pliny*, which I ſhall tranſcribe at length, ſince I ſhall have further Occaſion to make uſe of it. *Vide* Plin. *Edit.* Hard. *Tom.* ii. *p.* 627, and runs thus: *Miſcuit denario Triumvir Antonius ferrum. Miſcentur æra falſæ monetæ. Alii e pondere ſubtrahunt, cum ſit juſtum* 84 *e libris ſignari. Igitur ars facta denarios probare, tam jucunda lege plebi, ut Mario Gratidiano vicatim totas ſtatuas dicaverit.*

As to the ſecond of theſe Particulars, the Fineneſs of the Silver, the Antiquarians are not well agreed about it. *Savo-*

tus

tus, whoſe Judgment in thoſe Particulars is much to be relied on, ſays, *La plupart des metalls et monneys antiques Romains ont êtè battues ſur le fin.* Vide *Rink.* p. 52.

I am obliged to quote *Rink* for this, as not having *Savotus* by me; and indeed I ſuſpect it relates chiefly to the Gold Coins, which were generally of the pureſt Gold. *Vide Joubert*, p. 17. As to the Silver, the ſame Author maintains that the beſt of the *Conſular Denarii* fall ſhort of the *French* Standard, which as well as the *Spaniſh* is nearly the ſame with ours, by $\frac{1}{6}$ Part. At this Rate, ſince our Standard has about $\frac{1}{13}$ part of Alloy in it, the Alloy of the *Roman Denarius* would have $\frac{1}{6}+\frac{1}{13}$ Parts of Alloy in it, which two Fractions added together make $\frac{19}{78}$ and above $\frac{1}{4}$ of Alloy.

What Experiments were made by Mr. *Joubert* to come at this Concluſion I cannot tell; but I am afraid they were not made upon a ſufficient Number of Coins, or not made with due Exactneſs; for it will quickly appear by the Trials that I made, that the beſt of the Conſular Coins are ſo far from ſinking ſo ſtrangely below our Standard, that they equal, or even exceed it. This I think concluſive againſt Mr. *Joubert*.

As a probable Argument againſt him, I might take notice that the greateſt Debaſement that we read of the Silver in the *Roman Denarius*, was made by the Tribune *Livius Druſus*, who mixed an eighth Part of Braſs with Silver, *A. U. C.* 663, during the Conſulate of *Lucius Marcius Philippus*, and *Sextus Julius*. *Vide* Plin. *Edit. Hard. fol. Tom.* ii. *p.* 612. We are told that the Braſs was of the pureſt; but we are not told what the Silver was; but ſurely it could not be ſo baſe, however, as to ſink to Mr. *Joubert*'s Proportion of Alloy. I ſhall try this afterwards.

There are ſufficient Reaſons to think that the *Romans* were but poor Maſters at refining of Silver, which might poſſibly occaſion a Difference in the Goodneſs of their Coins, by

truſting to Chance for want of a certain Standard. They were able to manage Gold well enough, to which they could not give too much Fire. Silver Ore requires a great deal more Art to bring it to Perfection without great Loſs, than they ever ſeem to have been Maſters of. What has been often obſerved in *England* does no great Credit to the *Roman* Skill in the Management of their Metals; for the Cinders of ſome old Iron-works, ſuppoſed to be theirs, ſtill contain in them ſuch a conſiderable Quantity of good Iron that they are melted over again, in order to extract it.

The fineſt Braſs ſeems to have been leſs weighty than our Copper, eſpecially if the ſpecific Gravity of it be ſet at 9.000, which I own I think too much; becauſe the Eſtimate ſeems to have been made from Pieces of Coin. The violent Force which is uſed in Coinage, makes the Parts of the Metal lie cloſer, and thus increaſes the ſpecific Gravity. The ſpecific Gravity of a Silver Half-Crown of *William* III's, in *Harris*'s Tables of ſpecific Gravity, is ſet at 10.75, whereas, at the Rate of our Standard, it ought to be no more than 10.535. I ſhould rather chuſe therefore to ſet the ſpecific Gravity of Copper at 8.843, and have juſt Reaſon to imagine from the ſpecific Gravity of ſome of the following Coins, that the *Roman Æs puriſſimum* did not come up even to that.

In order to obtain ſome Inſight into this Matter, I took five *Conſular Denarii* and weighed them carefully; firſt in Air, then in Water, that I might not only have their Weights, but their ſpecific Gravities.

1. This was a very fair Coin, ſerrated, and well preſerved: It has on one Side the Head of *Jupiter*, in whoſe Face is a wonderful Mixture of Sweetneſs and Majeſty; at the back of the Head is S. C. and under it O, I ſuppoſe for *Senatus Conſulto*. On the Reverſe is a Victory driving a *Quadriga*. The Letters in the Exergue are ſo confuſed and imperfect, that

that it requires better Eyes than mine to make them out. By the Inſcription S. C. O. the Coin was ſtruck by the Authority of the Senate, which perhaps made the Mint-maſters more careful, than when they wrought by the Authority of the Conſuls, Prætors, Ædiles, *&c.* as they did ſometimes. *Vide* Rink, *p.* 123.

	gr.
The Weight of this Coin, in Air, is - - - - -	61.625
in Water, - - - -	55.875
Difference - - - - -	5.750

The Way to find the ſpecific Gravity is this : As the Difference between the Weight in Air and Water is to the Weight in Air, ſo is 1.000 to the Number ſought. Thus as 5.750 : 61.625 : : 1.000 : 10.717, *&c.* Which laſt Number 10.717, ſhews the ſpecific Gravity. Since the ſpecific Gravity of our Standard Silver, is generally ſet at 10.535, it ſeems at firſt Sight as if this Coin conſiderably exceeded our Standard. Yet if we conſider the ſpecific Gravity of King *William*'s Half-crown, mentioned before, at 10.75, it will appear that this *Denarius* is exceeded by it but a Trifle. Nay, ſince this *Denarius* has a very bold Relief, it muſt have been compreſs'd and condens'd ſo much in the Coinage, that it is a Queſtion whether the Metal of it before Stamping, was any thing heavier than our Standard.

This Coin is ſpecifically heavier than any of thoſe that follow ; conſequently it is of finer Silver : For an Alloy of any baſe Metal will make Silver lighter, Lead only excepted : But we have *Savotus*'s Word for it, that in his Eſſays on antient Coins, he never met with a Grain of Lead in any of them before the Time of *Septimius Severus*, when a Mixture of Braſs and Lead was made uſe of to allay the Silver. *Vide* Joubert. *p.* 22.

This Coin is ſo remarkable, that I cannot leave it without ſome further Obſervations.

1. That as it, after ſo many Ages, falls ſhort of 62 Grains *Troy*, only by $\frac{1}{4}$ of a Grain; I think no Doubt can be made but that it muſt have weighed full 62 Grains.

2. That as it is a *Nummus Serratus*, and yet comes ſo near its full Weight, it muſt either have been notch'd at the Mint before it was delivered out, or notch'd with a Chizzel ſo as to make little Loſs; or, laſtly, that it weighed when it was coin'd, conſiderably more than it does now.

3. That tho' this, and ſome other Coins of the Conſular Kind, may weigh about 62 Grains *Troy*, and be nearly about the Fineneſs of our Standard, and ſo be worth about 8 *d.* of our Money; yet I own, that much the greateſt Part of them fall ſhort, either in Purity or Weight: The Reaſons of which are partly to be collected from the above-cited Place in *Pliny*, as alſo from the Effects of Time, Wearing, Ruſt, and other Accidents. I take this firſt to have been a *Denarius* in Perfection, according to the Notion of the *Romans*; and upon ſuch *Denarii* I have founded my Computation.

I took notice that the ſpecific Gravity of Metals may be increaſed by the Compreſſion in Coinage. This may be confirmed by what happens in other Caſes. The ſpecific Gravity of caſt Braſs, for inſtance, is but 8.000, or at moſt 8.100; whereas the ſpecific Gravity of hammer'd Braſs is 8.349.

I ſhall call this firſt Coin *Jupiter*.

The ſecond I examin'd was a fair one, and but little worn; which had on one Side a Head, I think, ſurrounded with a Diadem; behind it is a Lituus, below it the Inſcription ANCUS. On the Reverſe is a Man on Horſeback with a Dog,

Dog, as I take it, below. To the left of this Figure, is the Inſcription *Philippus*. Immediately below the Horſe and ſeemingly contiguous to it, is an Aqueduct among the Arches, on which is AQVA MARCIA.

		gr.
The Weight of this *Denarius*,	in Air - -	59.625
	in Water - -	53.375
	Difference - -	6.250

The Proportion for finding the ſpecific Gravity, is as 6.250 : 59.625 : : 1.000 : 9.54.

I made two other Trials, one of which brought out the ſpecific Gravity 9.44, the other ſomething leſs; ſo that I ſhall pitch upon 9.44, as moſt likely to be exact; tho' indeed there is very little Difference between any of the three. This ſpecific Gravity is leſs than that of any of the following Coins, and much leſs than ſome of them; and indeed I have Reaſon to think it one of them which *Livius Druſus* allay'd with an eighth Part of fine Braſs; which, as we are told by *Pliny*, he did. It muſt however be obſerved, if his Braſs was as heavy as our Copper at 9.000, his Silver muſt have been very impure, which may thus be made out:

Suppoſe 8 Parts of Metal, 7 of which are of Silver and one of Copper, which laſt has for its ſpecific Gravity 9.000. If we ſuppoſe the Silver at 9.5, the Compound of the two will have exactly 9.4375 for its ſpecific Gravity; which will appear by multiplying 9.5 into 7, the Number of Parts of Silver, which gives 66.5, to this is to be added 9.000 for the ſingle Part of Copper, in all 75.5, which being divided by 8, gives 9.4375. This ſpecific Gravity 9.4375, is the ſame within a Trifle with that *Ancus* was ſet at, *viz.* 9.44.

Were

Were we to debaſe the Copper to 8.000, the ſpecific Gravity of this Silver would be near 9.6. If the Copper was ſuppoſed ſtill lighter, and ſet only at 7.000 the ſpecific Gravity of the Silver would not be quite 9.8. Upon the Whole it is evident, that if the Braſs was pure, the Silver was very baſe; and if we ſuppoſe the Braſs to be ſo debaſed as to have only the ſpecific Gravity 7.000, the Silver would be then alſo baſe, ſince it would fall ſhort of the Standard of pure Silver 11.091 by [11.091 - 9.8=] 1.291. It would alſo fall ſhort of our Standard, even of uncoin'd Silver, 10.535 by 0.735, and of our coin'd Silver 10.535 by 0.95.

I ſhall conclude, upon the Whole, that this was one of *Druſus*'s *Denarii*, and that in Compliment to one of that Year's Conſuls, *Lucius Marcius Philippus*, whoſe Family might poſſibly pretend to be derived from *Ancus Marcius*, the King's Head of that Name was ſtamp'd upon one ſide of the Coin, and on the other *Aqua Marcia*, with the Name *Philippus*.

I think it worth taking notice of, that here is no more of the Conſul's Name upon this Coin than barely PHILIPPVS, without the Title of COS: For tho' the *Romans* ſuffer'd the Triumviri Monetarii to ſet their Names, and little Titles, upon their Coins, yet they were ſhy of the great Magiſtrates, Conſuls, Tribunes, *&c.* whoſe Names and Titles never appear'd upon any Coins ſtruck in their own Times, till the Decay of the Commonwealth.

As I think it very plain, that this *Denarius* was one of thoſe of *Livius Druſus*, ſo I think it probable that the other was one of thoſe ſtruck by the Authority of the Senate; who after they had abrogated all the Conſtitutions of *Druſus* by one Decree, ſeem to have taken the Coinage into their own Hands, and to have raiſed the Coin to as great a Degree of Perfection as ever it had before, if not greater. I ſhall call this Coin *Ancus*.

The

The third *Denarius* that I ſhall conſider has a Head of *Roma* on one Side, having on a Helmet with Wings annexed. The Inſcription is ROMA. On the Reverſe is a Victory and a Quadriga. In the Exergue is the Inſcription M. TVLL.

		gr.
The Weight of this in Air	- - -	57.875
Water	- -	52.125
Difference	- -	5.750

The ſpecific Gravity - - 10.0652, *&c.* - - For as 5.75 : 57.875 :: 1.000 : 10.0652, *&c.*

Notwithſtanding we are able to find the ſpecific Gravity and Weight of this, and the two following Pieces, yet we are more at a Loſs to tell their Value in *Engliſh* Money, or indeed their Proportion to one another in Goodneſs, than in the former Coin; for in that we were told that the Alloy was $\frac{1}{8}$ of pure Braſs, which was of ſome Aſſiſtance in judging what was the Value of the Silver; but in theſe, ſuppoſing they were allay'd with Braſs, as it is probable they were, yet ſince we neither know the ſpecific Gravity of the Braſs, nor of the Silver that is mix'd with it, we can be at no manner of Certainty. I ſhall therefore content myſelf with giving their ſpecific Gravities and Weights, by the former of which we ſhall know, how much the Mixture falls ſhort in Weight of pure or Standard Silver. I ſhall call this Coin *Rome the bigger*, or *Roma Alata*.

The fourth *Denarius* that I tried has no *Alæ* annexed to the Helmet, as far as I can ſee; I ſhall therefore call this only ſimply *Roma*. Upon the back of the Head is X, for *Denarius*. There are either Bigæ or Quadrigæ on the Reverſe,

verſe, but the Coin is ſo much worn, that I cannot tell which; nor can I make out any Letters but the X.

	gr.
This Coin weighs in Air - - -	52.25
Water - -	47.25
Difference -	5.00

Specific Gravity 10.45

The fifth *Denarius* has upon one ſide, what *Hardouin* calls *Caput barbarum* [perhaps for *barbatum*] *& ignotum*: But, for my Part, I take it to be *Jupiter* under the Notion of *Pan*, who upon this Account hath a longer and ſharper Beard than ordinary given him. *Vide* Collier's *Appendix*, under the Word *Pan*.

I ſuppoſe *Panſa* choſe *Pan*, becauſe it had ſome Affinity to his own Name. There are many Inſtances to ſhew how fond even the *Romans* were of Rebus's, little Alluſions, *&c.* The firſt of the *Cæſars*, who had any thing relating to him ſtamped upon the Coin, was ſadly put to it, when he was forced to run to the *Punick* Language for the Word *Cæſar*; which in that Tongue ſignified an Elephant. However, when he had once made himſelf Maſter of that lucky Diſcovery, he put an Elephant inſtead of his own Name upon the Coin. *Cicero's Cicer*, &c. ſhew the Humour of a People, whoſe fine Taſte did not hinder them from reliſhing ſuch things as we juſtly take to be Puerile.

The Reverſe of this Coin has *Jupiter* ſitting half naked; his Right-hand ſtretched out, and ſeems to me to hold a Patera; tho' *Hardouin*, whoſe Coin was fairer than mine, takes no Notice of it. In his Left-hand he has a Haſta Pura. The Inſcription in mine is only, IOVIS AXVR, the reſt of the Letters are worn away, but may be ſeen in *Hardouin* on *Pliny*, together with an Interpretation of IOVIS AXVR, which

which is too whimſical to be repeated, much leſs confuted.

The conceited Poſitiveneſs of *Hardouin*'s Countryman * *Ruæus* upon *Virgil*'s *Jupiter Anxurus*, is very remarkable; who from this very Coin concludes, that *Jupiter Anxurus* had a Beard, and vilifies *Servius*, &c. for holding the contrary: And yet is is evident that the Inſcription *Jovis Axur* runs round the Figure without a Beard, *Jovis nondum barbati*; and therefore belongs to that, and not to the Head on the other Side.

This Coin is very remarkable upon one Account; for it will go a great way towards deciding a Diſpute among the Antiquarians, *viz.* Whether there were ever ſtruck more than one Coin with the ſame Die; for I have two of the *Panſas* which agree with one another to a Tittle, and both of them with *Hardouin*'s *Panſa* in thoſe Parts that are fair and diſtinct. Indeed I could never be of the Opinion of thoſe againſt whom this Argument is levelled; for at this Rate the Charge of Coinage muſt have, by many Degrees, exceeded the Value of the Pieces coin'd, which would have been an Expence altogether incredible, needleſs and ridiculous.

		gr.
Panſa weighs in Air	- - -	53.000
Water	- - -	47.625
Difference	- -	5.375

Specific Gravity 9.860, *&c.*

* *Æn.* vii. 799.

The Weights of theſe Coins are as follow:

	gr.	*ſp.Gr.*
Jupiter -	61.625	10.717
Roma - - -	52.25	10.45
Roma alata -	57.875	10.0652
Panſa - -	53.000	9.86
Ancus - -	59.625	9.54

I perceive by this Table, that Mr. *Joubert* was wrong in ſaying that the beſt of the Conſular Coins fell ſhort of our Standard by $\frac{1}{6}$ Part, but it is true enough of the middling ones; for it will appear that Mr. *Joubert*'s Proportion will bring out the ſpecific Gravity 10.279, which is leſs than the ſpecific Gravity of *Jupiter* and *Roma*, but greater than that of any of the reſt. According to Mr. *Joubert*, there are in the *Conſular Denarius* 5 Parts of Silver, at 10.535 ſpecific Gravity, and one Part of Alloy, which if it be of fine Copper, will have the ſpecific Gravity 9.000.

Let 10.535 be multiply'd by 5, the Number of Parts of Silver, it gives - - -	52.675
To which if we add for the one Part of Copper	9.000
They will make - - -	61.675

Which being divided by 6, the whole Number of Parts, it will give 10.279, the ſpecific Gravity, as above.

The Copper is ſet rather too high at 9.000, for Reaſons given before; but if it were reduced to 8.000, it would give for the ſpecific Gravity 10.1125, which ſtill exceeds the ſpecific Gravity of all the *Denarii* but the two firſt.

Upon

Upon the Review of the Whole, it may be obſerved,

1*ſt.* That the ancient *Conſular Denarius* was about as fine as our Standard, and probably continued in that State till it was adulterated by *Livius Druſus*. This happen'd *A. U. C.* 663. Silver was firſt coin'd at *Rome*, *A. U. C.* 485, as we are inform'd by *Pliny*, *Edit. Hard. Fol. Tom.* ii. *p.* 610; ſo that there was a Run of good Silver 178 Years. After the Debaſement by *Druſus*, the Senate ſeem to have reſtored the Money, at leaſt to its former Purity, in which State it probably continued for ſome time: I ſay *at leaſt* to its former Purity; for thoſe of the moſt antient Conſular Coins, which were ſuch as had the * *Roma alata* upon them in my Collection, do not come ſo near our Standard as *Jupiter*, which is a *Nummus Serratus*, and was probably ſtruck about this time; for *Marius Gratidianus* is ſuppoſed to have been the Inventor of the *Nummi Serrati*, which after the Fineneſs of the Coin was reſtored, was deſigned to prevent Counterfeits. The Deſign had its Effect for ſome time; but the falſe Coiners afterwards made a Shift to imitate them; ſo that they were forced to have Recourſe to making Holes in them, as was practiſed in *England* in our Time. *Vide* Rink, *p.* 65. However, *Marius Gratidianus* grew extremely popular by his Invention, which yet did not ſecure him from being barbarouſly butcher'd by *Sylla*.

The old *Conſular Denarius*, as I ſaid before, falls ſomething ſhort of our Standard, but yet comes ſo near it, that when it is of its full Weight, 62 Grains *Troy*, it will be about 8*d.* of our Coin.

As to the *Nummi Serrati*, their Value was ſo well known, that even the *Germans* were not ignorant of it: *Germani pecuniam probant veterem & diu notam, Serratos, Bigatoſque.*

* *Vide* Rink, *p.* 5, 6.

Vide *Tacit. Lipſ. p.* 437. Thoſe *Nummi Serrati* were pretty common till the Time of *Auguſtus*; but * *Joubert* ſays he never ſaw any after that.

2 *dly*, My Computation has nothing to do with any of the *Denarii* but the Conſular ones in perfection; for they began to degenerate, either in Weight, Fineneſs, or both, even before the total Ruin of the Commonwealth. Afterwards they ſunk in Value from our 8 *d.* to 7 *d.* and 6 *d.* and I know not what.

3 *dly*, I took notice before that *Biſhop Hooper* ſets the *Denarius* at 64 Grains *Troy*. I don't ſuppoſe that either he or any body elſe, ever ſaw or heard of a *Roman* Denarius of that Weight: However, as there are many Paſſages in antient Authors, which imply that the *Roman* Denarius was the ſame with the *Attick Drachma*, which is known to be 67 Grains, I imagine the *Biſhop* had a mind to trim the Matter, and make the *Denarius* 64 Grains *Troy*, inſtead of 62, that he might bring it nearer the *Drachma*. He might, for ought I know, have a better Reaſon; for if he had not, this is a very inſufficient one: And when his Hand was in, he might as well have halved 5 Grains, the Difference between the *Denarius* and *Drachma*, and ſo have brought the *Denarius* to $64\frac{1}{2}$ Grains, inſtead of 64.

As an Addition to what has been ſaid upon this Subject, I ſhall out of Curioſity examine what a *Denarius* of pure Silver weighing 62 Grains *Troy* would be worth in our Money; which may thus be found out.

Our Pound *Troy* of 240 Pennyweight, is coin'd into 62 Shillings, or 744 Pence. If from 240 *Pww.* we take 18 *Pww.* for the Alloy, there will remain 222 *Pww.* = 5328 Grains *Troy* of pure Silver, which are contained in 744 Pence. Then as

5328

* *Vide* Knowledge of Medals, *p.* 131.

5328 : 744 :: 62 : 8.65 (d.) which 8.65 is a ſmall matter above 8.2½ (d. f.).

Since the ſpecific Gravity has been ſo often mentioned in theſe Papers relating to the *Denarius*, it may be worth while to take Notice of Dr. *Barrow*'s Method of finding the Quantity of two known Metals in any Mixture without diſſolving the Maſs. As for Inſtance: The Quantity of Silver and Gold in *King Hiero*'s Crown. His Method to do this was by finding the Spaces taken up by Maſſes of Gold, Silver, and the Mixture of equal Weight. There is a great deal of Trouble in finding out theſe Spaces in the Method of * *Archimedes*, and indeed it is neither certain nor practicable in ſmall Maſſes; but they are eaſily found out by the Knowledge of their ſpecific Gravities.

Suppoſe, for inſtance, a Maſs of Gold of the ſpecific Gravity 20.000, an equal Maſs of Silver 10.000; if theſe two be added together, and divided by 2, they would give the ſpecific Gravity of the Mixture 15.000. Theſe three equal Maſſes then of Gold, Mixture, and Silver, are in Weight to one another as 20.15.10. In order to find out the Spaces taken up by Maſſes of Gold, Mixture, and Silver of equal Weights, we muſt proceed by the reciprocal Proportion of their ſpecific Gravities. The Gold was, for Inſtance, to an equal Maſs of Silver by the Suppoſition as two to one; therefore the Space taken up by a Maſs of Silver equal in Weight to the Gold, as 2 to 1. And the like will happen in all Caſes whatever, the Proportion being obſerved. For the reſt *vide* Barrow *on* Archimedes, *p.* 284.

I was willing, before I put an End to this long Chapter, to get a little Information of the *Roman Æs*; but not having any more antient Coin of Braſs than an *Auguſtus*, I put that

* *Vide* Vitruv. *lib.* ix. *cap.* 3.

to

to the Trial: It is of the *Æs rubrum*, or what we call Copper, and of a good Colour.

	Pw.	*gr.*	*gr.*
Its Weight in Air was	4 .	18 ¾ =	114.75
Water - -			102.25
Difference - -			12.50

Specific Gravity 9.18,

which exceeds the ſpecific Gravity of our fineſt coin'd Copper by 0.18; but if we conſider the Compreſſion made Uſe of in the *Roman* Coinage, which muſt have been far greater than in ours, this Exceſs of ſpecific Gravity may be owing to that Cauſe, and ſo the fineſt *Æs rubrum* of the *Romans* may well enough be ſet at the ſame Standard with our own.

I afterwards tried an *Agrippa* of a worſe-looking Copper, and not altogether free from Dirt and Ruſt. This weighed

	gr.
In Air - -	171.377, *&c.*
Water - -	150.625
Difference - -	20.752

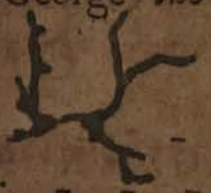
Specific Gravity 8.25;

which ſhews its Metal to be much baſer than the former, and even than that of our Coin in King *Charles* the Second's Reign. Moſt of the Imperial Coins that I have, came nearer the Colour of *Agrippa* than *Auguſtus*.

I ſhall add two more Experiments relating to the Compreſſion by Coinage, and the Increaſe of ſpecific Gravity thereupon enſuing.

I took

I took a *S. S. Shilling of King* George *the Firſt*, which weigh'd



	gr.
In Air - - -	91.6
Water - - - -	83.0
Difference - - -	8.6

Its ſpecific Gravity 10.6511.

This exceeds the ſpecific Gravity of our Standard uncoin'd Silver, which is only 10.535; but falls ſhort of that of *King* William's *Half-crown*, mention'd before, which amounts to 10.75. If there be no Miſtake in *Doctor Harris*'s Numbers or mine, the Half-Crown, by being letter'd upon the Edges, is more compreſſed and condenſed in Proportion, than the Shilling.

I had ſome Suſpicion that the Difference was, in ſome meaſure owing to the poor Relievo of *King George*'s Silver Money, *&c.* therefore I took a Shilling of *King Charles the Second* with a bolder Relievo, and well preſerved.

	pw.	*gr.*	*gr.*
This weigh'd in Air - - -	3 .	20 =	92.000
Water - - - -	3 .	$11\frac{3}{8}$ =	83.375
Difference - - -			8.625

The ſpecific Gravity 10.666, *&c.*

This exceeds the ſpecific Gravity of the former; but does not come up to that of King *William*'s Half-Crown.

CHAP.

CHAP. IV.

Of the ROMAN MEASURES *of Capacity for Liquids.*

THESE are eaſily had when the *Congius* is known. The *Doctor* has given us in his Book three *Congii*.

1. That of *Villalpandus* of 207.4737 ſolid Inches. *Vide* Arbuthnot, *p.* 81. How far this may be depended upon may be ſeen before.

2. *His own* Congius, which is deduced from the Pound, *&c.* according to his Eſtimate. This *Congius* gives 207.0676 ſolid Inches, and is what the *Doctor* makes Uſe of in his Tables. *Vide* Arbuthnot, *p.* 82. It differs from the *Congius* of *Villalpandus* by only $\overset{\text{ſ. In.}}{0}.\overset{\text{Dec.}}{4061}$. This *Congius* in the *Doctor*'s Tables is ſet $\overset{\text{Pints.}}{7} \text{—} \overset{\text{ſ. In.}}{4}.\overset{\text{Dec.}}{942}$. The Objections againſt his Pound hold equally againſt his *Congius*, for if his Pound be too large, his *Congius* muſt be ſo too.

3. The *Doctor* gives us a *Congius* deduced from the *Roman* Foot, which *Congius* conſiſts of 195.3139 ſolid Inches, and falls ſhort of *Villalpandus*'s by 12.1598 ſolid Inches. *Vide* Arbuthnot, *p.* 81.

4. A fourth *Congius* may be had from *Pætus*'s *Roman* Ounce of 416.610 Grains *Troy*, which will bring out the *Congius* 197.3415 ſolid Inches. This exceeds the third *Congius* by only 2.0276 ſolid Inches.

5. This is taken from *Savotus*'s *Roman* Ounce 411.875 Grains *Troy*. This *Congius* conſiſts of 195.0986, *&c.* ſolid Inches, and differs very little from the third, ſince it falls ſhort of it by no more than 0.2153 ſolid Inches.

6. A sixth may be had by the Ounce of 434 Grains *Troy*, which is deduced from the *Denarius*, as I have stated it at 62 Grains *Troy*. This *Congius* is in Weight, I mean contains Water of the Weight of 52080 Grains *Troy*, which may be thus made out. A *Sextarius* contains 20 *Roman* Ounces of Water, and a *Congius* 6 *Sextarii*. If therefore my Ounce of 434 *gr.* be multiplied into 20×6 it will give 52080 Grains *Troy* for the *Congius*. These Grains being reduced into Inches, after Dr. *Arbuthnot*'s Method, *p.* 81. will make this sixth *Congius* of 205.5789 solid Inches. *He makes 760 gr. equal to 3 solid Inches.* Then

Gr.	*s. I.*	*Gr.*	*s. I. Dec.*
As 760	: 3	:: 52080	: 205.5789.

Some Persons may perhaps think the *Denarius* set too high at 62 Grains *Troy*, and chuse to set it at 61. By this Estimate we should have a

7. Of 51240 Grains *Troy*, which would consist of 202.2631 solid Inches, and would differ from the *Congius* at a Medium describ'd in the next Chapter of dry Measures by no more than 0.977 Parts of a solid Inch.

The *Congii* stand thus:

	sol. In. Dec.
Villalpandus's,	207.4737
Arbuthnot's,	207.0676
My First,	205.5789
My Second,	202.2631
Pætus's,	197.3415
Arbuthnot's from the *Roman* Foot,	195.3139
Savotus's,	195.0986

Before we can adjust the *Congius* to the *English* Liquid Measures, we must know how many solid Inches are in our Wine Gallon, Pint, *&c.*

It is commonly ſuppoſed, that there are in the Wine Gallon 231 ſolid Inches. Upon this Suppoſition, which is a falſe one, and yet made Uſe of by Dr. *Arbuthnot* and others, the eighth Part of a Gallon, or Pint, will be $\frac{231}{8} = 28\frac{7}{8} = 28.875$ ſolid Inches. The *Congius* will be found by this Proportion:

As $\overset{\text{Sol. In.}}{28.875} : \overset{\text{Pt.}}{1} :: \overset{\text{Sol. In.}}{205.5789}$ to a fourth Number, which will give the Pints, &c. in the *Congius*. This fourth Number is $\overset{\text{Pt. S. In. Dec.}}{7+3.4539}$.

Since Dr. *Arbuthnot*'s *Congius* contains $\overset{\text{Pt. S. In. Dec.}}{7+4.9426}$, the Exceſs of his *Congius* above mine will be $\overset{\text{Pt. S. In. Dec.}}{0+1.4887}$.

So much for the Eſtimate of the Wine Gallon made Uſe of by the Gaugers, and by which the Exciſe is paid; but they who are concern'd, know well enough that it is wrong: For by an Experiment tried before ſeveral of our moſt eminent Philoſophers in public Poſts, as *Flamſtead*, *Halley*, &c. at which Mr. *Ward* was preſent, the Wine Gallon amounted to no more than 224 ſolid Inches; at which Rate the Pint will be exactly 28 ſolid Inches. The Proportion will now ſtand thus:

$$\text{As } \overset{\text{S. In.}}{28} : \overset{\text{Pt.}}{1} :: \overset{\text{S. In. Dec.}}{205.5789} : \overset{\text{Pt. S. In. Dec.}}{7+9.5789}.$$

The Difference now between us is more conſiderable; for my *Congius* will exceed his by 4.6363 ſolid Inches.

	Pt. S. In. Dec.
My *Congius* being -	7+9.5789
His - - -	7+4.9426
Exceſs above his -	0+4.6363

The

	Pt.	ſ.In.	Dec.
The *Congius* according to my Estimate is	7 +	9.5789.	

	Pt.	ſ.In.	Dec.
The *Sextarius*, or 6th Part of it, - - -	1 +	6.2631	
The *Hemina*, $\frac{1}{2}$ of Sextarius, -	$\frac{1}{2}$ +	3.1315	
The *Quartarius*, $\frac{1}{4}$ of Sextarius, - -	$\frac{1}{4}$ +	1.5657	
The *Acetabulum*, $\frac{1}{8}$ of a Sextarius, -	$\frac{1}{8}$ +	0.7828	
The *Cyathus*, $\frac{1}{12}$ of Sextarius, - -	$\frac{1}{12}$ +	0.5219	
The *Ligula*, $\frac{1}{48}$ of Sextarius, - -	$\frac{1}{48}$ +	0.1304	

Theſe being found out by dividing the *Congius*, the reſt of the Meaſures may be found out by multiplying it.

	Gal.	Pt.	ſ.In.	Dec.
The *Urna* is 4 *Congius*'s, - -	3 +	5 +	10.3156	
The *Amphora* is 8 Congius's -	7 +	2 +	20.6312	
The *Culeus* is 20 Amphora's -	146 +	6 +	20. 624	

	E.Gal.	Pints.	ſol.In.	Dec.
Ligula, - -	000	$\frac{1}{48}$	00.1304	
Cyathus, - - -	000	$\frac{1}{12}$	00.5219	
Acetabulum, - -	000	$\frac{1}{8}$	00.7828	
Quartarius, - -	000	$\frac{1}{4}$	01.5657	
Hemina, - -	000	$\frac{1}{2}$	03.1315	
Sextarius, - -	000	1	06.2631	
Congius, - -	000	7	09.5789	
Urna, - - -	003	5	10.3156	
Amphora, - -	007	2	20.6312	
Culeus, - - -	146	6	20. 624	

	Gall.	Pint.	ſ. In.	Dec.
Dr. *Arbuthnot*'s *Culeus*, in his firſt Tables, corrected by the Pen, contains	143 +	3 +	11.328	
and conſequently falls ſhort of mine	3 +	3 +	9.296	

	Gall.	Pint.	ſ. I. Dec.
In his Tables printed with his Book, the *Culeus* is ——	143	+ 3	+ 11.095
which falls ſhort of the ſame ——	3	+ 3	+ 9.529

Before I quit this Subject of the Liquid Meaſures, I cannot help taking Notice of a Fault in Dr. *Arbuthnot*, P. 124, in relation to the *Cyathus*.

Upon a Suppoſition that *Budæus*'s Emendation of a Paſſage in *Pliny* is right, he ſays, That the *Cyathus* of *Opimian* Wine came to two *Nummi*. It is ſtrange, that he ſhould ſubſtitute the *Cyathus* inſtead of the *Uncia*; for the *Uncia* alone is mentioned by *Pliny*, and there is not a Word in this Place relating to the *Cyathus*.

He could not have ſo far forgot himſelf, as not to know that the *Cyathus* and *Uncia* were two quite different Things; for the *Cyathus* was $\frac{1}{12}$ Part of the *Sextarius*; but as the *Sextarius* contain'd 20 Ounces of Water or Wine, a ſingle Ounce was only a $\frac{1}{20}$ Part of it. Therefore the *Cyathus* was to the Ounce as 20 to 12, or exactly as 1.666, &c. to 1, and conſequently the *Cyathus*, exceeded the Ounce by above one Half. This being the Caſe, he muſt certainly have ſubſtituted the *Cyathus* inſtead of the *Uncia*, in order to make his Computation of Intereſt agree with what he imagined to be *Pliny*'s. The Place in *Pliny* is certainly a very difficult one, and was *Hardouin*'s Explanation of it right, the Ounce of *Opimian* Wine was ſold for 960 *Seſtertii*, or 8 Pounds of our Money, according to my Value of a *Seſtertius*; a Price altogether monſtrous and incredible. *Vide* Plin. *Edit.* Hard. *Tom.* i. *p.* 714.

By *Budæus*'s Emendation of *binis* inſtead of *vini*, the Ounce was ſold for no more than 2 *Seſtertii*; a wide Difference this in their Accounts! but I think neither of them right, nor indeed capable of being reconcil'd to *Pliny*.

I ſhall

I ſhall therefore venture at another Emendation, and inſtead of *vini*, read *nummo*: This Emendation is not ſo forced as it may ſeem at firſt Sight; for I don't imagine that *nummo* was written at Length in that Place, but only its Character $\overline{N}$. Vid. *Sertorius Urſatus*, which afterwards might eaſily become *NI* by the Careleſneſs or Ignorance of the old Librarians. *NI* not being underſtood by the following ones, and the Subject being *vinum*, they changed *NI* into *VINI*. If this be admitted, the Ounce of Wine was ſold for a *Nummus* or *Seſtertius* and all will be eaſy; which may thus be made out:

The *Amphora*, which contain'd 960 Ounces, was ſold at firſt for 100 *Nummi*; at this Rate the Ounce was worth little more than 0·1 of a *Seſterce*. But a hundred and ſixty Years afterwards, the Intereſt of a 100 *Nummi* at 6 *per Cent.* would amount to $160 \times 6 = 960$ *Nummi*, which being added to the principal 100, would make 1060 *Nummi* in all. If this Sum be divided by 960, the Number of Ounces in an *Amphora*, it will give 1.1 *Seſtertius* for the Value of an Ounce; and as the Fraction is but a ſmall one, and probably was neglected in Trade, an Ounce of this *Opimian* Wine was ſold for a *Nummus* or *Seſtertius*. Indeed *Pliny* ſeems to have neglected the Principal of 100 *Seſtertii* in his Account, and to have regarded only the Intereſt 960 *Seſtertii*, at which Rate the Price of an Ounce of this Wine would be preciſely one *Nummus* or *Seſtertius*.

I think this is rating the Price high enough; for if the *Seſtertius* be ſet at 2 *d.* which I take to be the true Value of it, the *Sextarius* which contain'd 20 Ounces, and exceeded our Pint only by a ſmall Fraction, would have coſt 3 *s.* and 4 *d.* of our Money; and two *Sextarii*, nearly our Quart, 6 *s.* and 8 *d.* This I think was a fair Price for Wine at that time of day, when Wine was ſo exceſſively cheap as

to

to be ſold ſometimes at 2*d.* a Gallon, or leſs *. *Vide* Arbuthnot, *p.* 125, 126.

All that Dr. *Arbuthnot* ſays about the *Cyathus* is foreign to the Purpoſe, as alſo what he has about the *Anatociſmus*; for *Pliny* ſays nothing about the *Anatociſmus*, and but barely mentions the *Uſura modica & civilis*, which was *multiplicata ſemiſſibus*, or 6 *per Cent.*

As to the *Anatociſmus*, it ſeems to have been reckon'd oppreſſive, and yet ſome Uſurers ſeem not content with it, tho' they had 12 *per Cent.* beſides, for their Money: *Nihil impudentius Scaptio, qui centeſimis cum anatociſmo contentus non eſſet.* Vide *Cicer. ad Attic.* lib. v. Ep. 21. Arbuthnot, p. 210.

If the former Emendation appears too harſh, I know no other Method of ſetting Matters right, but by ſuppoſing that if the old reading *ſingulas uncias* VINI *conſtitiſſe*, be right; *HS* has been dropp'd by the Librarians, after *vini*; but if *Budæus*'s Conjecture hold good, who reads BINIS inſtead of VINI, the *S* in *HS* muſt have been dropp'd, and the Legs of the *H*, or *II*, made *binis*; or what is ſtill more probable, out of *IIS* was made *Binis.*

Faults of this Kind are ſo very common in ancient Authors, that it is to be lamented that they did not write all their Sums, Dates, *&c.* in Words at length, inſtead of any numerical Characters whatever: An Error in a little Character often confounds a great Sum, and the common Writers

---

* What is ſaid here is upon a Suppoſition that the *Romans* took Wine and Water to be of the ſame, or nearly the ſame ſpecific Gravity. *Vide* Arbuthnot, *p.* 91, 92. *Lowthorp*'s *Abridgment of the Philoſophical Tranſactions*, I. p. 610. But above all, *Fannius* in *Ward*'s *Diſſertation de Aſſe. Monum. Kempian.* p. 49.

ſeem

ſeem to have been of the ſame Temper with our common Printers. There was ſo much Money to be paid for ſo much Work; if they could get their Money, they were not at all ſollicitous whether their Work was executed well or ill.

Since I wrote what went before about the *Cyathus*, I have met with another Miſtake relating to the *Cadus*, ſo that I am afraid the *Doctor* was not over exact in his Quotations and Tranſlations: His Words are, *Page* 93, "that *Julius* "*Cæſar* at his triumphal Supper, according to *Pliny*, *lib.* 14. "*cap.* 15. gave 100 *Cadi* of *Chios* Wine, that is, 4 Tuns, "$25\frac{1}{2}$ Gallons." I am at a Loſs how to reconcile this with the Words of *Pliny*, which are theſe, *Cæſar Dictator triumphi ſui cænâ vini Falerni amphoras, Chii cados in convivia diſtribuit.* Here is another of 100 *Cadi*, which, were we to ſet the *Cadus* at the higheſt, would have been but a Trifle at a triumphal Entertainment, eſpecially at one of *Cæſar*'s.

The *Cadus*, according to *Hardouin*, is by ſome Authors ſet at 10 *Congii*, by others at 12. *Vide* Plin. *Tom.* i. *p.* 722. Dr. *Arbuthnot* ſays, *Page* 93. that *the* Cadus *was the ſame with the* Metretes, which by his Tables contains

Gall. Pint. ſ. In. Dec.
10 — 2 — 19.626. *Pag.* 83. He ſeems to make the *Cadus* the ſame with the *Amphora*, which he ſets at

Gall. Pint. ſ. In. Dec.
7 — 1 — 10.66.

Pliny's Meaning plainly is, that *Cæſar* gave to each Set of Company an *Amphora* of *Falernum* and a *Cadus* of *Chian* Wine. The ſingle Sets did not conſiſt of many Perſons, but then they were vaſtly numerous; ſo that there muſt have been an Expence of Wine far beyond what our Author mentions. If he had reflected upon what he ſays, tho' not very exactly, at *Page* 131, that *Cæſar* borrow'd of

Hirrius

Hirrius 6000 *Lampreys for one of his triumphal Suppers*, beſides what he probably bought and had of his own, or from Friends, and had conſider'd that there muſt have been other Eatables, and Wine in Proportion, he would have found that there were ſo many thouſand Gueſts at one of theſe Entertainments, that 100 *Cadi* of *Chios* Wine would hardly have been a Taſte for each.

CHAP.

CHAP. V.

Of ROMAN MEASURES *of Capacity for Things dry.*

THESE may be adjuſted to *Engliſh* Pecks, Gallons, *&c.* by comparing the ſolid Inches in the *Modius* with thoſe in the *Engliſh* Peck, between which there is but little Difference. The ſolid Inches in the *Modius* are found by thoſe in the *Congius*; which, according to my Computation, are 205.5789. For 8 *Congii* = 1644.6312 ſolid Inches make an *Amphora*, which contains 3 *Modii*, conſequently, if $\overset{\text{ſ. I.}}{1644}.\overset{\text{Dec.}}{6312}$ be divided by 3, we ſhall have for the *Modius* $\overset{\text{ſ. I.}}{548}.\overset{\text{Dec.}}{2104}$.

We have two different Eſtimates of the ſolid Inches and Decimals in the *Engliſh* Peck.

The firſt is $\overset{\text{ſ. I.}}{544}.\overset{\text{Dec.}}{5}$; this is the common Reckoning. If this ſuppoſed Peck be taken from my *Modius*, it would leave a Difference of $\overset{\text{ſ. In.}}{3}.\overset{\text{Dec.}}{7104}$, and conſequently the *Modius* would be $\overset{\text{Peck.}}{1} - \overset{\text{ſ. I.}}{3}.\overset{\text{Dec.}}{7104}$.

The ſecond Eſtimate of the *Engliſh* Peck, which is the true one, according to *Ward*'s *Young Mathem. Guide*, p. 36, is $\overset{\text{ſ. I.}}{537}.\overset{\text{Dec.}}{6}$. This would bring out the *Modius* that I ſhall ſtick to, $\overset{\text{Peck.}}{1} - \overset{\text{ſ. I.}}{10}.\overset{\text{Dec.}}{6104}$.

The *Congius* which the *Doctor* makes Uſe of in order to find his *Modius*, is $\overset{\text{ſ. I.}}{207}.\overset{\text{Dec.}}{0676}$; which being multiplied by 8, gives the *Amphora* $\overset{\text{ſ. I.}}{1656}.\overset{\text{Dec.}}{5408}$. This being divided by 3, gives the *Modius* $\overset{\text{ſ. I.}}{552}.\overset{\text{Dec.}}{1802}$.

If from this be taken the firſt or common *Engliſh* Peck $\overset{\text{ſ. I.}}{544}.\overset{\text{Dec.}}{5}$, it will leave a Difference of $\overset{\text{ſ. I.}}{7}.6802$, or throwing off the two laſt Decimals $\overset{\text{ſ. I.}}{7}.68$, and conſequently his *Modius* will be $\overset{\text{Peck}}{1}$ —— $\overset{\text{Gall.}}{00}$ $\overset{\text{ſ. I.}}{7}.68$, as he has rated it in his Tables.

	Peck	Gall.	ſ. In. Dec.
The *Doctor's* Modius then is -	1	00	7.68
Mine - - - -	1	00	10.6104
Difference - - -	0	00	2.9304

which is all the Exceſs of mine above his.

Theſe ſolid Inches are too inconſiderable to be minded in ſmall Matters; but as they amount to $\overset{\text{ſ. I.}}{183}.45$*th* Part of my Peck, it is evident that in 183.45 *Modii*, my Meaſure would exceed his by about a Peck.

The *Modius*, with its Diviſions, will, according to my Eſtimate ſtand thus, neglecting the Decimals of the 5th Place and beyond it:

	Peck	*Gall.*	*Pint*	*ſ.I. Dec.*
The *Modius*, - -	1	0	00	10.6104
Semimodius, -	0	1	00	5.3052
Sextarius, - -	0	0	1	0.6631
Hemina, -	0	0	$0\frac{1}{2}$	0.3315
Acetabulum, -	0	0	$0\frac{1}{8}$	0.0828
Cyathus, -	0	0	$0\frac{1}{12}$	0.0552
Ligula, - -	0	0	$0\frac{1}{48}$	0.0138

It is perhaps worth obſerving, that if we were to compute the *Modius* between the two Extremes of *Villalpandus* and *Savotus*, we ſhould have a new *Modius*, which would differ from

from the true *Engliſh* Peck by leſs than a ſolid Inch; which will thus appear:

	ſ. In. Dec.
The *Congius* of *Savotus* is - -	195.0986
Hence his *Amphora* - -	1560.7888
His *Modius* - - -	520.2629
The *Congius* of *Villalpandus* is - - -	207.4737

If theſe two *Congii* be added together, and divided by 2, we ſhall have a *Congius* between the two Extremes *ſ. In.* *Dec.* 201.2861.

	ſ. In. Dec.
Whoſe *Modius* found as before, will be - -	536.7629
The *Engliſh* Peck is - - - -	537.6000
and therefore exceeds this *Modius* only - -	0.8371

According to this Suppoſition, the *Roman Modius* and *Engliſh* Peck might well be reckon'd the ſame.

A *Congius* computed from the *Denarius* at 61 Grains *Troy*, would be *ſ. In.* *Dec.* 202.2631, and would differ from the *Congius* at a Medium, by no more than *ſ. In.* *Dec.* 0.977, which is leſs than a ſolid Inch.

	ſ. In. Dec.
The correſponding *Modius* is - - -	539.3682
The *Engliſh* Peck - - - - -	537.6000
The Difference - - - - -	1.7682

Some may poſſibly like theſe Proportions; but I chuſe rather to keep to my former ones, for Reaſons given in their proper Places.

FINIS.

ERRATA.

Page 3, line 10, for *Preparation* read *Proportion.* p. 12, l. 12, for *into the Decimals* read *into Decimals.* p. 14. laſt line, for *7 gr.* $\frac{46}{62}$, *or 7 gr.* 74 read *7 gr.* $\frac{46}{62}$, *or 7 gr.* 0.74. p. 15, l. 2, for 0 26 read 0 . 26. p. 17, l. 2, for *monneys* read *monnoys.* ibid. l. 13, for *and above* read *and is above.* p. 25, l. 7, for *yet is* read *yet it.* p. 29, l. 25, after *Gold*, add *muſt be to the Space taken up by the Gold.* p. 39, l. 15, for *another* read *nothing.*

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